

*on the move:
Christchurch
transport through
the years*

4. the wire web

*the christchurch
tramway board
& its early electric
tramways 1903-1920*



*Christchurch
Transport Board
Tramway
Historical Society*



preface

"To excel the past we must not allow ourselves to lose contact with it; on the contrary, we must feel it under our feet because we raised ourselves upon it."

Jose Ortega Y Gasset

Since the first Europeans settled in what is now Christchurch over 140 years ago, transport has undergone many changes — various modes of travel have come and gone.

As you read about Christchurch's transport history, you look at the lives and times of the people of the city — the men (and later, women) of the transport industry, the passengers, the politicians. Indeed, it is impossible to divorce the story of transport from that of the city.

This series of booklets is not a definitive history, but rather, a look at what we believe are particularly interesting aspects of Christchurch's transport history. It is a written and photographic record designed to increase public awareness in the historical richness of local transport and of Christchurch itself.

In this volume you will read about the antagonism that existed prior to 1902 between the Christchurch City Council and the Sydenham Borough Council over who should control the tramways; the dramatic opening day procession accident of 1905; the sometimes hazardous life of the tram conductor who had to make his way along the footboards on the outside of the tramcars so he could collect fares; how tramcars were used in Christchurch to assist the health authorities during the influenza epidemic of 1918; and a great deal more.

Many New Zealand people now feel they should stop and consider the past. We want to know our roots, from whom we are descended, and what we can learn from previous generations. If these booklets are successful in any of these aims they will have achieved their purpose.



Cathedral Square towards the end of the First World War (note the Red Cross Sales Depot, right background). This photograph provides a good example of the "wire web" of overhead trolley-wires (left foreground). The tramcars and trailers shown are, from the right, a "Boon" tramcar and two saloon double-deckers; a California Combination and two "Punts"; a "Boon" tramcar and "Dreadnought" trailer;

introduction

the wire web

Leaving the sheds, [the electric tramcar] glided out of the yard gates into Falsgrave Street, and, putting on a fairly good pace, soon reached Cathedral Square, where its appearance excited attention from a few people who still lingered in that locality, and some attempts were made at ovations.¹

So wrote a "Press" reporter about a midnight trial run which took place on May 27, 1905, only a few days before the official opening of Christchurch's electric tramways.

A new era was about to dawn for the city's transport — that of the electric tramway. The electric tram was regarded as a great marvel, a wondrous achievement symbolic of nineteenth century progress. These new cars, which could hurtle along at the "amazing" speed of up to 30 miles per hour, propelled by an invisible force, gripped the imagination of the public.

In no time the new electric trams assumed an essential role in the lives of Christchurch's citizens. Trams took men to work in the morning and back home again in the evening, children to school, mothers into town for shopping; families travelled by tram on weekend excursions, whether to the beach at Sumner or New Brighton, or to stroll around the Cashmere Hills; and trams took thousands to sporting events such as rugby and racing.

Not only did the means of traction change in Christchurch in the early years of the twentieth century, but so too did the control of the tramways. The newly formed Christchurch Tramway Board took over the reins from the private companies. In so doing, it initiated a vast number of improvements and created a service that many people regarded as the best in the country.

This booklet tells the story of the Christchurch Tramway Board and its electric tramways from 1903 to 1920.



a "Boon" tramcar; a double-decker tramcar; and a California Combination with two "Cage" trailers. In the foreground, obscured except for the roof, is a California Combination. The original 1907 tram shelter is in the centre.

Photograph: Canterbury Museum.

the background

von Siemens to Sprague: evolution of the electric tram

In the later years of the nineteenth century some of the inventive minds of Europe and America were working on the development of an improved means of traction for tramways. The inadequacies of horse, and to a lesser degree, steam traction, had become obvious. Some form of electric traction would propel the trams of the future.

The new tramway era began with Werner von Siemens, whose reliable electric locomotive delighted visitors at the Berlin Industrial Exhibition of 1879. Several developments followed during the 1880s, using a number of differing methods of electric current collection. Lines were constructed in Europe, Britain, and America, and operated with varying degrees of success.

The triumph of electric tramways came about largely from the work of Frank Julian Sprague, an American, who used and improved the now familiar trolley-pole for collection of

electricity instead of the "trolley" (a system whereby two wheels ran on lines above the track and were connected by wires to a motor in the tramcar) and made other improvements. Sprague found immediate success with an electric tramway in Richmond, Virginia, which began public service on February 2, 1888. From this time onward, electric tramways began to appear in many places around the world.

Although the overhead trolley system proved the most satisfactory, and was in consequence the most commonly used, other methods of current collection were still employed. These included battery cars, the conduit (or underground) system, and even a stud system, where a skate mounted under the tramcar passed over metal studs flush with the road in the centre of the track, bringing them alive and feeding current to the car motors.

electric trams come to New Zealand

New Zealand was not far behind the world leaders in implementing electric tramways. New Zealand's first electric-powered line was one of 1 mile and 35 chains between Roslyn and Maori Hill in Dunedin, which opened in October 1900. It was not until November 1902, however, that the first extensive electric tramway system opened; this was in Auckland.

Dunedin followed Auckland, its electric service opening on Christmas Eve 1903. In June 1904 Wellington's electric tramways opened, and just one year later Christchurch followed suit. The other electric tramways in New Zealand were at Wanganui (opened December 1908), Invercargill (March 1912), Gisborne (April 1913), Napier (September 1913), and New Plymouth (March 1916). Apart from Gisborne, which had an Edison battery tramway service, all of these tramways were operated on the overhead trolley system.

New Zealand's electric tramways, excluding the initially privately owned and operated Auckland system and the Roslyn and Maori Hill line,² were municipally controlled.

preliminaries

of steam and horse³

Since Christchurch's first passenger tramlines opened in 1880, the operation of the tramways was in the hands of private companies. The largest and most important of these was the Canterbury Tramway Company (later recapitalised as the Christchurch Tramway Company), which owned and operated most of the lines. The New Brighton Tramway Company and the City and Suburban Tramway Company each owned and operated a line which terminated at New Brighton, while the Christchurch City Council-owned "Corporation line" was

leased to the New Brighton Tramway Company.

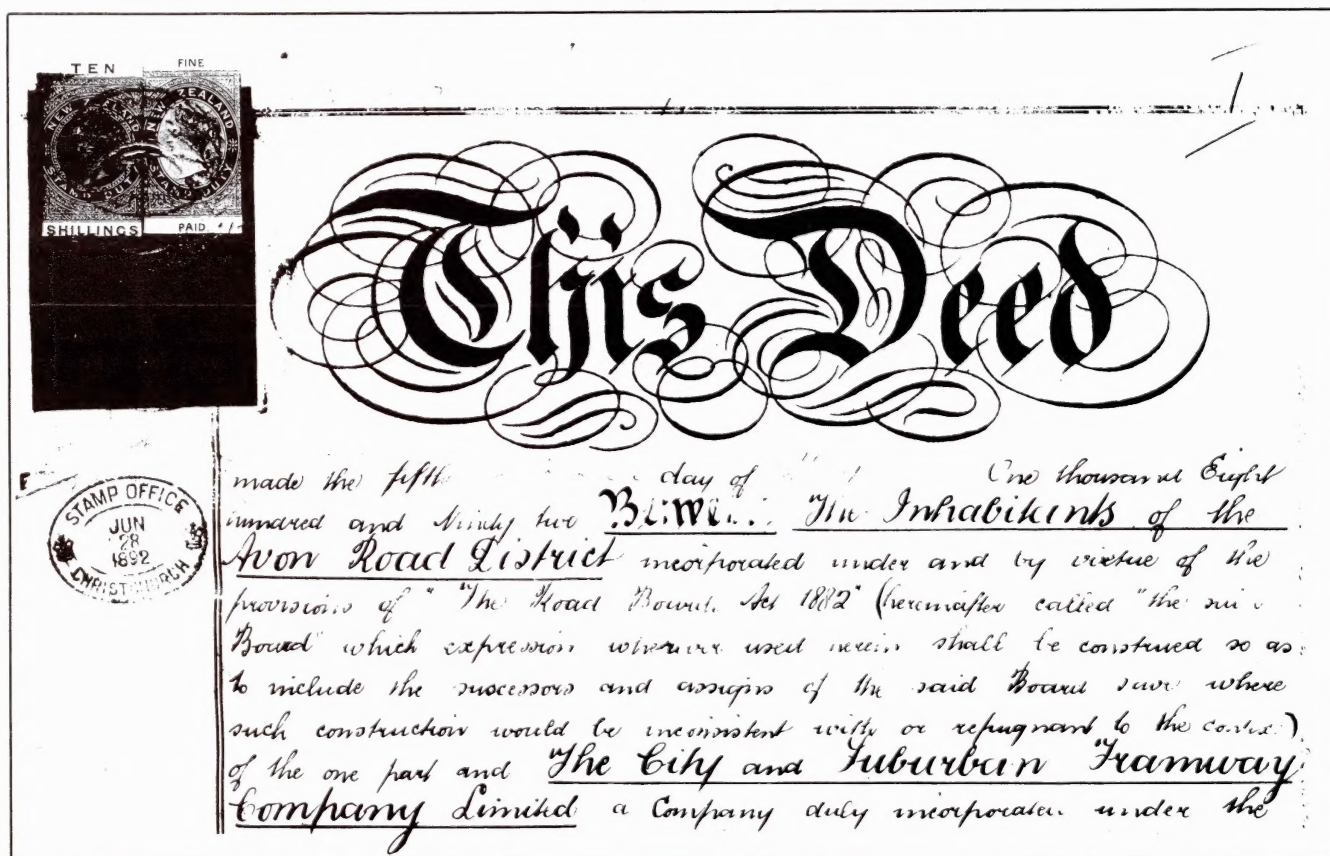
These early tramlines used steam and horse power. However, by the turn of the century dissatisfaction with these forms of traction was widespread; it was felt that if Christchurch was to develop further an improved public transport system was essential. Two questions needed to be answered: first, should the tramways be municipalised or privately-owned? and second, should the tramways be electrified?

the movement to municipalise

At the beginning of the twentieth century local body control of Christchurch's tramways was, for the first time, seriously considered. There had been talk of municipalisation in the past — the question had been raised in 1893, for instance, when the Canterbury Tramway Company had gone into liquidation — but it had never been more than talk.

Now the time seemed right for the local bodies to reappraise the situation. Interested parties had noted that not only were there many successful examples of municipalised tramways in Britain, but that local body control led to upgrading of

public transport. In addition, the expectancy of good returns from an efficiently run tramway system fuelled much interest. Needless to say, there were those who held the view that tramways should be privately owned and operated. These people no doubt kept in mind the Christchurch City Council's earlier efforts in the tramway field: the less than successful Corporation line and the embarrassment of the tramway hearse.⁴ They were also aware of the large amount of money required to modernise tramways.



An extract from the deed of concession from "The inhabitants of the Avon Road District" to the City and Suburban Tramway Company, dated May 5, 1892.

The three tramway companies operated their tramlines under concessions from the various local bodies. These concessions, granted for a limited period of time, gave the companies the right to construct and operate tramlines along particular routes.

The Christchurch Tramway Company's city concession was of immediate importance at this time. In 1896 the company sought a new 21 year concession from the City Council as its present one was due to expire in three years; but neither party could, in the end, agree on the matter. The City Council did not wish to take over the tramways itself, but was not willing to give up the possibility of doing so for another 21 years.

To resolve the problem the tramway company and the City Council took the matter to arbitration in 1899; Sir James Prendergast, the Chief Justice for the area, arbitrated. His judgement was that the Christchurch Tramway Company's city concession should be extended to September 1904. Prendergast's deed of award to the Christchurch Tramway Company covered only the tramlines in the inner area while the concessions for those beyond the city expired at differing times up to 1919.⁵

From 1900 onwards, with the deed of award in place, and the immediate tramway problem in abeyance, a series of local body conferences were held. The matter in question was the future of Christchurch's tramways. From the start the Conference favoured local body control, but as is often the case in local body politics, a wrangle ensued.

the push for electrification

Leading to the turn of the century, the possibility of electrifying the tramways was being widely talked of in Christchurch, as in other New Zealand centres. In 1896, for instance, when the Christchurch Tramway Company made its first representations to the City Council for the renewal of its city concession, the company stated that it was exploring alternative means of haulage. Of the nine methods discussed, "electricity on overhead or trolley-wire system" was described as "being largely adopted [elsewhere] and deserves careful consideration". The Christchurch Tramway Company had duly considered it and reached the conclusion that it "would appear that the trolley system could not be made financially successful [in Christchurch]".⁷ The simple fact was, however, that the company did not have the money to construct such a system. Indeed, even maintenance of its existing track was a burden.

By 1900 electrification had become the keyword when it came to considering the future of the tramways. Electric trams were fast, clean, and comfortable, and meant a far more efficient service. In addition to which, electric trams were essential for a city of consequence, such as Christchurch. The tramway question seemed to be on everyone's lips at this time.

Not everyone was in favour of electric trams, though. Early in 1903, for instance, the Royal Society, which was conducting experiments in the Antarctic, sent a letter to the New Zealand government, complaining that there was a "grave danger" that the value of observations being done by a magnetic observatory in Christchurch "would be destroyed by the magnetic disturbances due to the installation of electric tramways about to be laid at Christchurch". The success of the work in the Antarctic was dependent upon "having a record of simultane-

The City Council, the strongest of the local bodies, had by now decided it wanted to control the tramways itself, but some of the other local bodies, notably the Sydenham Borough Council, would have none of this — they too wanted a share in both the control and the hoped-for spoils. In the end it came down to a battle between Christchurch and Sydenham, with St Albans siding with the latter. Sydenham, a body that was described as "very contentious . . . which generally found itself at loggerheads with its neighbours and when not at loggerheads with them at loggerheads with itself",⁶ eventually won out. Although the City Council made it clear that it was essentially opposed to the formation of a tramway board of elected members, a proposal originally made by Sydenham, it stated somewhat condescendingly at a meeting of the local bodies in March 1902 that it was "prepared to consider" such a proposal.

In February of that year the Tramway Conference was approached by the British Electric Traction Company which offered to construct and operate electric tramways in Christchurch. This company was at the time constructing the Auckland electric tramways. Although the company's Christchurch proposals received a large measure of support from the populace, the Tramway Conference was inclined towards municipalisation. If the British Electric Traction Company's approach achieved anything, it was to provide the Tramway Conference with the impetus to get down to action.

ous magnetic observations made in other parts of the Southern hemisphere". The Tramway Board's engineer countered this complaint by stating simply that no such disturbances would result from the operation of electric tramways.⁸

The water, gas, and telephone authorities, too, had reservations. It was known that electric tramways could damage underground water and gas pipes. The current, when returning to the power house to complete its circuit, could meet resistance at rail joints and have a tendency to leave the rail and seek to return via underground pipes, eating them away by "electrolysis".

Furthermore, it was believed that telephone services could be interrupted as the single trolley system might lead to the flow of electricity interfering with the earth currents of the telephone system and make it practically useless.

These problems were dealt with in the following ways. That of electrolysis was partially overcome by bonding together the joints between each section of rail with a thick copper connection or by a process known as "thermit" welding (see GLOSSARY), and by negative feeders (cables which returned the current from sections of the rail to the power house). Regardless of these measures, the Board was metered by the Public Works Department to ensure that most of the power sent out into the tramway system was returned. The solution to the telephone problem was the adoption of a metallic return for the telephones.⁹

Despite the objections made against electric tramways, though, most Christchurch people wanted this new form of public transport. Their desire was soon to be met.

along came the tramway board

In June 1902 the Tramway Conference agreed that control of the Christchurch tramways be vested in an elected tramway board. In the following months a bill was drafted and presented to Parliament. The Christchurch Tramway District Act became law on September 26, 1902, and gave effect to the labours of the tramway conferences.

This Act provided for the creation of the Christchurch Tramway Board, an autonomous body which had full power to construct, equip, maintain, and work tramways and carry goods and passengers within the district.¹⁰

Further, it empowered the Tramway Board to levy rates in the district for tramway purposes, gave borrowing powers of £250,000 for the purposes of purchasing, extending, altering, renewing, repairing, and equipping existing tramways, for introducing a system of traction (including the use of electricity as a motive power) which the Board thought best, and for the purposes of acquiring, constructing, or equipping other tramways. This money was not, however, to be used for maintaining tramways. When the money had been spent a further £100,000 could be raised. The only proviso in relation to borrowing the money was that proposals to do so be placed before the electors and carried. The Act also necessitated the creation of a sinking fund of $\frac{1}{2}$ per cent each year to ensure the loans were repaid.¹¹

The Tramway District comprised the City of Christchurch, the Boroughs of Sydenham, St Albans, Linwood, Woolston, New Brighton, and Sumner, the Road District of Spreydon, and certain parts of the Road Districts of Avon, Heathcote, Riccarton, and Halswell. Power was given to the Governor¹² to include new areas into the district. The Board was to consist of eight members, four from Christchurch, Sydenham, and St Albans; one from Linwood; one from Sumner, Woolston, and Heathcote; one from New Brighton and Avon; and one from Riccarton, Spreydon, and Halswell. Board members were to be elected by residents and ratepayers at triennial elections.

ELECTRIC TRAMS IN CHRISTCHURCH.

EFFECTS ON ANTARCTIC EXPLORATION.

LETTER FROM THE ROYAL SOCIETY.

(FROM OUR OWN CORRESPONDENT.)

LONDON, January 30.

Mr W. P. Reeves has received a very interesting letter from the Secretary of the Royal Society in connection with the expeditions now exploring the Antarctic.

In this letter the President and Council of the Society draw the attention of the New Zealand Government to the importance for international scientific investigation of the work being done by the magnetic observatory at Christchurch. At the present time the success of one of the cardinal aims of the two Antarctic expeditions—British and German—now in the far South, depends on the having a record of simultaneous magnetic observations made in other parts of the Southern hemisphere. And the scientific world is relying very largely on the Observatory at Christchurch to supply this data. According to information received by the Royal Society, there is grave danger that the value of these observations will be destroyed by the magnetic disturbances due to the installation of electric tramways about to be laid down at Christchurch. The Royal Society, as representative of the interests of British science with regard to the Antarctic Expedition, and its international relations, therefore desires to appeal to the good offices of the Government of New Zealand toward securing such arrangements as will prevent serious disturbance of the system of observations, at any rate until the return of the Antarctic Expeditions. The Royal Society recognises that the interests of magnetic research cannot claim to form a permanent obstacle to industrial development. But the President and Council desire to draw attention to the very great scientific importance of an adequate permanent magnetic observatory in an undisturbed site in New Zealand, or on one of the outlying islands, as without it there would be no magnetic data available over a large region of the earth's surface. They therefore desire to draw the attention of the Government of New Zealand to the parallel case of the Observatory at Kew, Richmond, Surrey, which has been removed to a more remote site, on account of the same kind of disturbance. In this case the Tramways Company have provided a large sum toward the expense of removal, and of securing continuity between the observations at the new site and the original one.

I believe the letter of the Royal Society has been forwarded to the New Zealand Government.

The first Tramway Board was elected on January 21, 1903, in an election in which 15 candidates lined up for the eight Board positions. According to a newspaper account the election itself "passed off quietly and with an absence of the bustle and excitement which accompanies a general election of members to Parliament." "The Press" reporter apparently felt that one of the more noteworthy events of the day was that T.H. Davey, one of the losing candidates, "was confined to his room by a return of the throat infection that gave him some trouble during the general elections".¹³

William Reece, an ex-mayor of Christchurch, received the highest number of votes. An extract from a newspaper report of his election day speech went as follows:

If [the people] supported the Board they had elected and loyally accepted the proposals it would place before them, then he [Reece] was quite sure that the Board would do its best for them, and the tramway system would be a success. (Cheers and applause.)¹⁴

Other notable men elected to the Board included Henry Wigram, who at the time was Mayor of Christchurch (he was to resign from the Board just over a year later), and A.W. Beaven, a well known Christchurch businessman.

The Board met for the first time on January 29, 1903, electing Reece chairman and Wigram deputy chairman. At its second meeting, on February 13, the Board appointed Frank Thompson secretary (he later became the first general manager), and soon after secured the services of F. Hulbert Chamberlain as engineer. Chamberlain, an American, had just completed an engagement with the Sydney tramway authorities, and was about to sail back to America. Acquiring the services of this well known tramway expert was quite a coup on the part of the Board, especially as its members lacked knowledge of electric tramways. Chamberlain's expertise was to prove crucial to the Board's early progress.

Within weeks, the momentous formation of "Greater Christchurch" took place — that is, the amalgamation of the Boroughs of Sydenham, St Albans, and Linwood with the City of Christchurch. Since 1890 there had been almost continuous discussion about the matter of amalgamation, and the City had always seemed in favour. Sydenham, however, had seen only the disadvantages, and consistently made its opposition clear.

The tramway question had played a vital role in making the local bodies more aware of the urgent need for unity. In the words of Henry Wigram,

The successful solution of the tramway difficulty by the constitution of a Tramway Area and a Tramway Board encouraged the hope that the time might be ripe for the amalgamation of the four Boroughs, which really comprised the City of Christchurch. The desirableness of such a union was hardly open to question.¹⁵

A poll held among the people of the four Boroughs, on the same day as the first Tramway Board election, proved that the majority favoured amalgamation, so this formally took place on April 1, 1903.

Much of the Board's early work involved decisions concerning routes, gauge, and the equipment associated with electrification, and placing before the ratepayers proposals for the first loan of £250,000. In the poll, taken on June 16, 1903, the loan proposals were carried by 2856 votes for to 338 against. In the same year, an amending Act was passed which included in the Board's district portions of the Riccarton and Templeton Road Board districts, resulting in the addition of a ninth Board member, and authorising the raising of a loan of £55,000 for the construction of an electric tramway in Riccarton and Sockburn. Ratepayers agreed to this loan proposal also.



*William Reece, first chairman of the Tramway Board.
Photograph: "Weekly Press"/Canterbury Public Library.*



*Frank Thompson, secretary to the Tramway Board, and later the first general manager.
Photograph: "Weekly Press"/Canterbury Public Library.*



*F. H. Chamberlain, engineer.
Photograph: "Weekly Press"/Canterbury Public Library.*

In the meantime, the engineer and staff were kept busy preparing plans and specifications for the electrical system. The Board had to purchase a site for the power house, desiring to locate it in a central position of the tramway network to facilitate the economical distribution of electricity. The Board also wished to provide easy access for coal which was to fuel the boilers. The site in Falsgrave Street adjacent to the railway met these requirements.

Tenders for the construction of the electric tramways were sought from March 17, 1904. Eight tenders were received, and of these, the New Zealand Electrical Construction Company's quote of £249,876 was accepted.

The man behind this company was T.E. Taylor, a leading radical, social reformer, and Member of Parliament, who was later to be a mayor of Christchurch. Taylor, who became the company's secretary, had not wanted to see this huge contract, believed to have been the largest offered in New Zealand up to that time, go to a non-New Zealand company. He formed the New Zealand Electrical Construction Company for the specific purpose of carrying out the contract.



T. E. Taylor, secretary of the New Zealand Electrical Construction Company.

Photograph: "Weekly Press"/Canterbury Public Library.



A traction engine pulls a plough during permanent way construction on High Street, near the Cashel Street intersection. Note the line of hansom cabs in the background.

Photograph: "Weekly Press"/Canterbury Museum.



Dignitaries inspect permanent way construction progress in Fitzgerald Avenue, during the initial contract.

Photograph: Canterbury Museum.



Lifting a pole into place on Colombo Street, during the initial contract.

Photograph: "Weekly Press"/Canterbury Museum.

construction

Day by day thousands of citizens have watched the permanent way creep along the streets, carefully skirting sharp corners, making great curves, and taking to itself the best part of the thorough-fares. Pedestrians, cyclists, and vehicles have had to stand aside and let it pass, and by day and by night it has been a "line of confusion" to many people who, in the heat of their irritation, have forgotten the object in view, and the good purpose it will serve.¹⁶

So wrote a newspaper reporter about the progress of "permanent way" construction in June 1905, when less than half the track of the initial contract had been laid.

Permanent way construction began in late September 1904 at the corner of Fitzgerald Avenue and Lower High Street (now Ferry Road). The work of the contractors aroused a great deal of attention. "The magnitude of the contract and the nature of the work involved", wrote a newspaper reporter, "have surrounded the undertaking with particular public interest . . ."¹⁷

The work was laborious and required an army of men on the job. The equipment consisted of picks and shovels and horse-drawn drays and traction engines. Despite problems — mainly to do with wet weather and short supplies of metal — the contractor did a commendable job, and construction was said to have been more rapid and £1000 per mile cheaper than in other cities. An average of 48 chains were laid each week.

It is interesting to note that the construction of tramlines often led to road improvement. There were two reasons for this. First, sufficient room had to be provided for vehicles

to pass on both sides of a tram, thus necessitating in some cases widening of roads. Second, if the proposed line of the tramway contained any hollows these were filled in while any rises in the road were levelled off.

On routes where construction was in progress, alternative transport had to be provided. This was supplied by horse-drawn drags run by private operators under contract to the Board.

Permanent way construction also included the erection of overhead trolley-wires. A great deal of skill and experience was required here, as the overhead line had to be erected with precision.

In "The Press" in June 1906, when the permanent way and overhead trolley-wires were nearly completed, a list of the materials used was provided. These were: 2400 poles, 63 miles of trolley wire, 65 miles of feeder cables, 120 miles of telephone and other wires, 80,000 sleepers, 26,000 electric bonds, 90,000 yards of metal, and 5500 tons of rails.¹⁸

By September 1906 the initial contract for laying the permanent way and overhead had been completed. Lines constructed and electrified were Papanui to Christchurch Railway Station (opened June 6, 1905¹⁹), Sumner (opened for steam, June 6, 1905; for electrics, April 25, 1907), Cashmere — that is, to the bottom of Colombo Street (August 16, 1905), Riccarton (opened for steam, November 2, 1905; for electrics, March 12, 1906), Lincoln Road (February 8, 1906), and New Brighton (opened to Linwood, March 26, 1906; to New Brighton, August 6, 1906). All lines, of course, centred on Cathedral Square.



Insulating a wire on the Papanui line, during the initial contract.

Photograph: "Weekly Press"/Canterbury Museum.



*The car shed at Falsgrave Street.
Photograph: "Weekly Press"/Canterbury Public Library.*



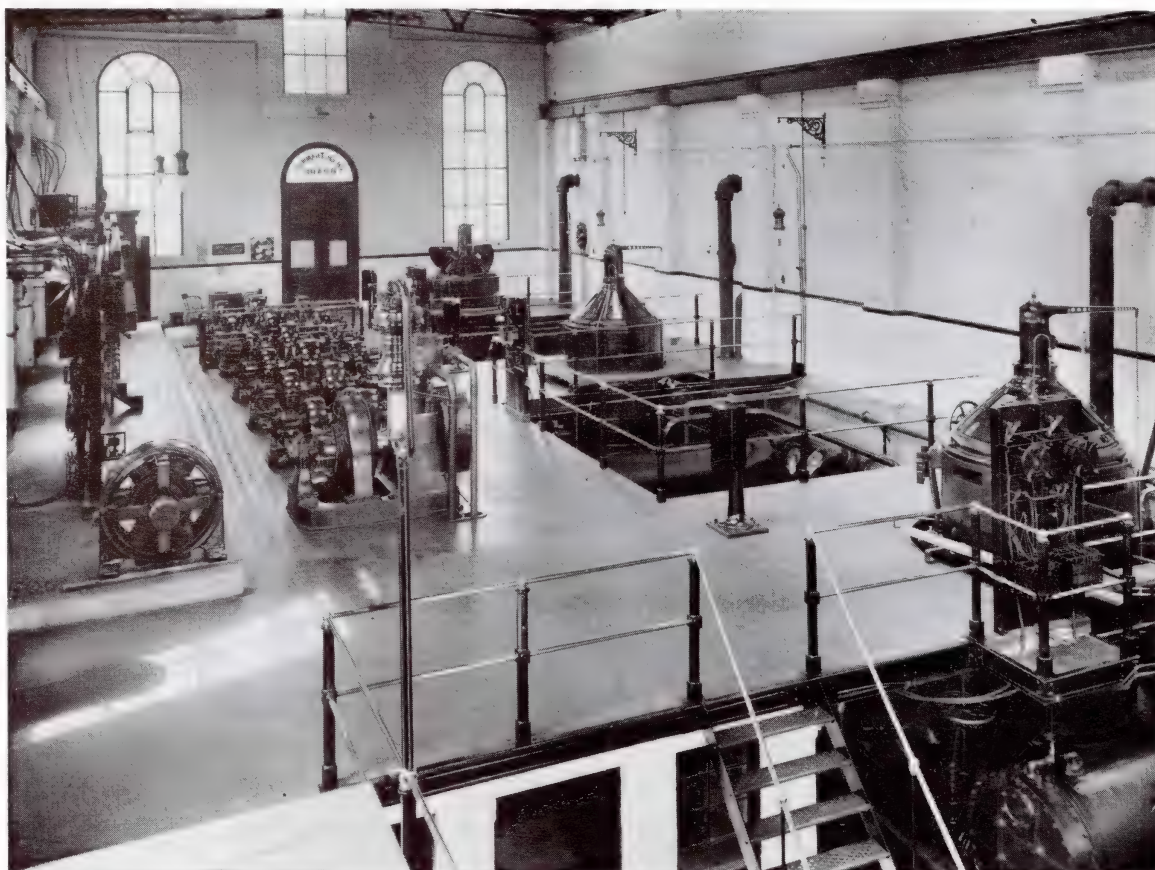
*The power house at Falsgrave Street.
Photograph: "Weekly Press"/Canterbury Public Library.*

Permanent way construction was only one, albeit the major, aspect of the contractor's work. Also to be built were the power house with its steam plant for producing electricity, and the car shed, both in Falsgrave Street. The latest direct-current equipment was installed in the power house. This included three vertical 600 volt turbo-generators, which were supplied with superheated steam from the coal-fired boilers, and a 600 volt accumulator battery which was used to start the circulating and vacuum pumps for the turbines and to stabilise the power loading. The power house incorporated several interesting features, including a 149 foot high chimney stack, the second highest in Christchurch at the time; a cylindrical iron cooling tower, some 35 feet high and 25 feet in diameter; and an electrical switchboard, 47 feet long and

6 feet high, the largest in New Zealand at the time of installation.²⁰

The car shed had a large proportion of its area set aside for storage of tramcars, the remaining area being used for offices, machine shop, and stores. Of the shed's capacity of 1470 track feet, the initial rolling stock used 1039 feet, leaving 431 feet for additional electric cars. Not long after the car shed's construction it was found necessary to increase its size.²¹

A further aspect of the construction contract was the tramcars. The building of these was subcontracted to John Stephenson and Company of New York, which built 22 of the first order of tramcars, and to the local coachbuilder Boon and Company, which built the remaining 5 cars.



Part of the interior of the power house .



South-east corner of Cathedral Square in the days of the old tramway companies, 1902. The long buildings in the centre and to the immediate right (on the south side of Worcester Street) are the Christchurch Tramway Company's tram sheds and offices — note the Kitson steam motor, the "Punt" trailer, and the trailer sprinklers. The building at the far end of the tram sheds and offices is the Christchurch Tramway Company's stables. At left (on the north side of Worcester Street, one property along from the house on the corner) is what is believed to be a tram shed used by the New Brighton Tramway Company — note the curved tramline leading into it, and the trailer in the entrance. Adjacent to this is another building used by the Christchurch Tramway Company as stables.*

Photograph: "Weekly Press"/Canterbury Public Library.

* An alternative theory suggests that this building is in fact another Christchurch Tramway Company tram shed.

dealing with the tramway companies

While the contractor was hard at work on the new electric tramway, the Board's negotiations for the purchase of the old companies were in progress.

Back in August 1901, when the Christchurch Tramway Company learnt that a conference of local bodies to discuss tramway matters had been convened, it made its intentions clear in a provocative letter, which was possibly nothing more than a bluff to extract maximum benefit for itself. The letter offered the following alternatives:

- (1) That the local bodies should buy out the company immediately.
- (2) That the local bodies should agree to buy out the company in September 1904 when the deed of award covering the lines in the inner area expired.
- (3) That the local bodies should grant an extended lease to the company to enable it to re-lay its lines and establish a modern service.
- (4) That no arrangement be come to, and the company be left, if it thought fit, to adopt a policy wherein the company would do all it could to increase its profit, at the expense of the public — including raising fares, refraining from building new rolling stock, and perhaps withdrawing some of its cars rather than spending money on renovating them.²²

The Tramway Conference, with municipalisation foremost in its planning at this juncture, realised all three private tramway companies would have to be compensated at some future time — but in 1901 the point had not been reached for making any decisions on this matter.

Now, in 1905, with the Tramway Board fully established, the time had arrived for taking over the assets of the companies. These assets included land, buildings, bridges, permanent way, some horses, and rolling stock.

Arbitration was resorted to in all three cases because the parties involved could not agree on an acceptable purchase price. Though most of the Christchurch Tramway Company's concessions expired in September 1904, it continued in operation at its own risk under an agreement with the Board until May 16, 1905, the day the Board commenced operations.

In the case of the New Brighton Tramway Company, an agreement was signed with the Board so that the company could carry on without prejudice for a time until the Board was ready to assume control. The New Brighton Company, in fact, continued its operations until August 1, 1905, when its assets were handed over to the Board. Because at this time tramway construction was running behind schedule, the Board contracted with William Hayward and Company for supply of horses and drivers, the Board supplying tramcars and conductors itself, to enable the service to continue. This arrangement lasted until into the following year.

The take-over of the City and Suburban Tramway Company was less complicated. Although this company was prepared to continue operating its horse trams, the Board was not agreeable, and the company's assets were taken over in November 1906.

Because of the poor financial status of the companies, and the fact that most of their assets were of little value, the compensation paid them came as a "gift from the gods".²³ The Christchurch Company received £23,910, the New Brighton Company £7267, and the City and Suburban Company £7982. In addition, the Board took over the Corporation line, paying the City Council £1200 for the privilege.

electric trams at last

the coming of the gliding cars

With the contractor's work almost half completed by late May 1905, the Tramway Board put some of its newly arrived tramcars to the test. One experimental run took place near midnight on May 27. A tramcar, described simply as an "open end car", travelled from the Falsgrave Street car shed to Cathedral Square, which it circled, then continued along Colombo Street onto the Papanui line. The journey, covering a distance of 4 miles, took 27 minutes, including stoppages. The return journey was done in the same time. After this car returned to the car shed a double-decker was run over the same line.

The significance of the event was noted in "The Press". "Although the night was cold," wrote a reporter, "[the passengers] enjoyed the novelty of the situation, and appreciated the fact that they were participating in quite an historical event in the municipal life of the city."²⁴

Another experimental run, probably the most notable, took place on June 2. Late at night seven cars made a return journey of an hour and-a-half to Papanui to rehearse the opening day procession.



People posing for photograph during a rehearsal of the opening day procession, in Cathedral Square, late evening of June 2, 1905.

Monday, June 5, 1905 was described by a newspaper reporter of the time as "an epoch-marking day", a day that future historians would find "writ large in letters of scarlet". Despite the clichés, the reporter was right, as this day marked one of the more important events in Christchurch's history to that time — the official opening of its electric tramways. Another reporter went further, stating that, "... the installation of the electric tram system ... must be numbered among [Christchurch's] most notable achievements. It is one of two great events in the history of this city [the other being the formation of Greater Christchurch]."²⁵

It was a cold, windy day. There had been a heavy snowfall the day before, and snow and slush lay on the ground. Invited guests were driven to the power house in Falsgrave Street by horse tram, and once there had to wade through heavy slush to get to the building. Following the mandatory speech-making, the turbines were started and a procession of seven electric tramcars, including double-deckers at front and rear, left for Papanui, via Cathedral Square. A tramwayman of the day reminisced years later of "portly gentlemen with beards or mutton chops dressed in frock coats, striped trousers and top hats, and ladies in bonnets, bustles, and wide skirts on the top of a double-decker ..."²⁶

Occasionally, during important civic occasions, incidents will occur that leave more than a few red faces. The opening day of Christchurch's electric tramways turned out to include one of these instances.

When the procession reached the intersection of St Asaph and Colombo Streets the tramcars slowed to a stop, due to what a newspaper described as "the working of the overhead wire".²⁷ As the sixth car slowed it seemed unable to stop and ploughed into the back of the car in front of it. The iron fenders on both were crumpled and the platform of the fifth tramcar caved in, glass crashing and woodwork breaking.

Four passengers had been on the platform at the rear of the fifth car. Two jumped clear, but the remaining two had no time to react before being pinned against the wall by the wreckage surrounding them. One of them, a police inspector named Gillies, was struck on the nose by a piece of wood, causing severe bleeding, while his right leg was badly bruised and sprained below the knee. The other man, a newspaper reporter, sustained nothing more than a torn coat and bruised leg.

The cause of the accident was later given as driver's error, the motorman of the sixth car being deemed to have lost his presence of mind at the crucial moment. He was said to have been subsequently demoted to the job of driving the emergency wagon.²⁸

Following the accident, both the fifth and sixth cars were withdrawn and the procession continued on its slightly less than merry way. Despite the accident, and the damper it put on the general festivities, the public did not seem to be in any way put off electric tramways.

An editorial in "The Press" remarked on the significance of the opening day and the anticipated changes that would result from the new tramways:

An event of great importance in the local history of Christchurch and district was celebrated yesterday, when the first section of the electrical tramway ... was formally inaugurated. There is no doubt ... that the opening up of this modern means of communication will make a considerable change in the social and residential life of the people.²⁹

The next day, June 6, the first timetabled car left the Clock Tower in High Street at 6.45 a.m. F. Hulbert Chamberlain, the Board's engineer, was at the controls as motorman, and John Wood, the traffic manager, stood beside him on the platform.



John Wood, traffic manager.
Photograph: "Weekly Press"/Canterbury Public Library.

The first services brought "unprecedented and entirely unexpected" patronage, and competition among passengers was intense. According to a newspaper report of the first day's operation, the people of Christchurch "played with their new tramway all day yesterday, and late last night, until they were tired."³⁰

In the early months of operation, electric trams retained their novelty value, and patronage grew quickly. William Reece, the Board's chairman, was able to give a satisfactory account of progress seven months later, in January 1906. The "Lyttelton Times" commented that,

The increase in the traffic has already exceeded his [Reece's] expectations, and the revenue is being maintained well over working expenses. It was established that the private companies were carrying three and-a-quarter million passengers a year, and Mr Reece counted upon the Tramway Board increasing the number to five and-a-quarter million.³¹

Although the growth in patronage was impressive, some of the fascination the Christchurch public had felt about its electric trams soon dissipated. This was noted in a "Lyttelton Times" report on a trial trip on the Lincoln Road line early in 1906. The trial took place on a day in which "a spiteful rain spat scornfully on things and men in general, and pounded the permanent way into puddles and slime ...". The reporter went on to observe that,

There was a time — and that not long since — when the trial trip of an electric car was an event in Christchurch, something to rush out and stare at and enthuse about. But it is different now; the public is tired of its new toy — the car has developed into a cold, prosaic convenience of civilisation, and its glory as a spectacle has vanished like the gilt off the gingerbread.³²



Cutting the ribbon prior to starting the opening day procession, Moorhouse Avenue.

Photograph: "Weekly Press"/Canterbury Public Library.



Opening day procession through Cathedral Square, June 5, 1905, with a double-decker tramcar covered in bunting and flax. Note the fancy iron-work of the pole supporting the trolley-wires, on the left. Godley statue in the centre, background.



The new: Opening day procession at Papanui, with double-decker tramcar number 24 at the front. The old: inset photograph, showing Kitson number 1 hauling two saloon double-deckers at Papanui.

keeping the wheels turning: operating the tramways 1905-1920

early days

On May 16, 1905, the day after the Christchurch Tramway Company handed over its assets, the Board's tramwaymen, dressed in their new uniforms of blue patrol jackets, trousers, leggings, and black boots, and smart caps bearing the words, "C.T.B. Electric Tramways", carrying the latest in ticket equipment, commenced their duties. At the same time, motormen for the electric cars began practising their skills running their cars up and down the newly constructed line in Moorhouse Avenue.

On taking over the city's tramways, prior to electrification the Board's policy was to immediately replace all horse tram services with steam — although on both the old New Brighton and City and Suburban tramway companies' lines horse traction was used for a short time. Because of a lack of road metal, electrification of the New Brighton line took longer than anticipated, so horse trams continued in operation for a brief period (see page 12); while the extra demand placed on the tramway system by the International Exhibition of 1906-1907 may have been the reason for the continued use of horse trams — also for only a brief period — on that part of the

old City and Suburban line (city to Richmond) which had not been abandoned.

Steam traction continued to be used for many years after electrification; indeed, it was essential to the Board's operations. The Kitson steam motors, with their ability to haul up to six trailers, proved particularly useful on peak days, such as Show Day and other holidays.³³

When Christchurch's electric tramways began operations the Board's fleet consisted of the 27 electric cars constructed under the initial contract, and the rolling stock acquired from the Christchurch Tramway Company of 7 Kitson steam motors and 42 trailers.³⁴ Twenty-two more trailers were later acquired from the New Brighton and City and Suburban tramway companies and the Corporation. Three of these were not to be used by the Board and a fourth, although taken over, was never modified for electric traction.

This fleet was adequate to meet passenger demand on the tramlines in the early days of the Board's control, the most popular of which proved to be the lines to Papanui and Cashmere.



The Baldwin steam motor with "Cage" trailers in tow, steams through Cathedral Square, probably during the time of the International Exhibition of 1906-1907. The electric tramcar on the right is a "Yank". Note the bicycles and the hansom cab in the foreground.

The Board endeavoured to keep its fares at a realistic level, in keeping with its often expressed policy of operating for the public good. The Board's chairman stated in 1909 that,

The aim of a public service, such as the tramways, should be not to make the profits which would be demanded by private speculators, but to give the people the most convenient and cheapest means of transit possible, while at the same time preserving the financial stability of the undertaking, which should not be at the cost of the ratepayers, but at the cost of the passengers as a whole.³⁵

It was true, however, that individual Board members over the years were known to support the concept of operating along more accepted business lines.

The Board had resolved in 1905 to adopt the "penny-section" fare system. From the city to Papanui was threepence, to Sumner sixpence, to the foot of the Cashmere Hills threepence, to Lincoln Road threepence, to New Brighton fivepence, to Riccarton race course sixpence, and to the Christchurch Railway Station one penny. Despite the Board's efforts to refrain from increasing its fares and to keep them realistic — increases did occur, particularly from the late 1920s — complaints from the public were frequent.

"Concession tickets" were very popular among Christchurch's tram users. These were initially issued as coupons which were exchanged for a cash fare ticket, but were quickly replaced by cards.

One type of concession ticket was the "residents' coupon" which was available for people living near a particular line for use on that line only, and was not transferable. This was the cheapest concession ticket, reducing the cost of a sixpence ride to three ⁹/₁₀ pence or a twopence ride to 1½ pence. Initially residents' coupons were issued in cumbersome books of 160 tickets, but were soon reduced to 80 tickets, and finally to 40.

A discount was offered to the military, too. "Volunteers" could travel at threepence each way to the Redcliffs rifle range, provided they were in uniform and carrying a rifle. This period, it must be remembered, was shortly after the Boer War and the Russo-Japanese War of 1905.

The Board also offered a seaside excursion fare of sixpence return to both New Brighton and Sumner. However, this was restricted to certain trams, and was available only on weekdays, with public holidays excluded. Because at this time Monday to Saturday inclusive were classified as weekdays, and the working week included for most people at least Saturday morning, only a restricted number of people benefitted from the fare. This can be seen by the following comparison: in the 1906-1907 financial year 62,000 people used the excursion fare to the seaside, while on Show Day of 1907 alone, as many as 19,932 people were carried to and from the Show Grounds at Addington.

Special return tickets were offered to various events and attractions. In some cases, when the Board felt it was warranted, profits would be shared with the promoters of events or attractions, or the entrance fee would be included in the tram ticket price. An example of this was Professor Bickerton's gardens in Wainoni. These gardens, opened to the public at the turn of the century by their owner, Alexander Bickerton, the eccentric chemistry professor of Canterbury College, became a popular attraction for many visitors. Other examples included hill climbing competitions on the Cashmere Hills, galas at New Brighton and Sumner, and the Riccarton race course.

Not only did trams carry passengers, they also carried goods and animals (although carriage of the latter became illegal from December 1915). Among these non-human items were mail, newspapers, prams, bicycles, dogs, road metal, and cement.



Double-decker tramcar number 24 at Christchurch Railway Station. Note that the car has an open front, dating this photograph in the early months of electric tram operation.

Photograph: Canterbury Museum.



The North Beach tram — a "Boon" tramcar and two saloon double-deckers — which has just gone around the New Brighton loop. The Pier is in the background. This was the terminus of both the New Brighton and North Beach lines.

Photograph: Canterbury Museum.

SEASIDE EXCURSIONS.

Every Week Day (holidays excepted)
Special Excursion Cars leave for Sumner
at 10.5 a.m. and N. Brighton at 10.5 a.m.

Fares, 6d. Return.

Available for Return on day of issue
only, and on Cars leaving Seaside not
later than 6.22 p.m.

the Christchurch exhibition loop line

For five and-a-half months, from November 1906 to March 1907, the city of Christchurch played host to an international exhibition, one of the greatest events in its history. An area of 14 acres in North Hagley Park was filled with Exhibition buildings, sideshows, and outdoor exhibits. The purpose of the Exhibition was to show the world the colony's prosperity and to demonstrate half a century of progress. Close on two million attendances were recorded.

Christchurch was selected as the Exhibition city partly because of its recently constructed electric tramways, which would provide visitors with swift, reliable, and comfortable transport. Another influential factor was that there was an ideal spot on which to locate the Exhibition buildings, at North Hagley Park.

In December 1905 the Exhibition conveners, keeping in mind the huge crowds that would flock to the event, approached the Tramway Board about laying a loop line to provide visitors with easy access to North Hagley Park. The Board agreed to the proposal, and an electrified loop line was laid from the existing tramline in Victoria Street, along Peterborough Street to Park Terrace, then along Salisbury Street, back to Victoria Street.

The government paid the total cost of £1800 for the construction of the line, while the Tramway Board had agreed to buy back the material used on the line at a cost of between £500 and £600. The fare from the Railway Station or any part of the line in between to the Exhibition was set at twopence, with the Exhibition conveners getting one penny.

Approximately 500,000 twopenny tickets were issued, providing the Board with a healthy return. Indeed, from November 1, 1906 to March 31, 1907 the passengers on all the tramlines in the city and suburbs nearly doubled that of the same period in previous years.

The track was removed in April 1907.

Exhibition Service.

RAILWAY STATION TO EXHIBITION.

Trams from Railway Station to Exhibition, via Manchester Street, every 10 Minutes from 9 a.m. to 10 p.m.

Trams from Exhibition to Railway Station, via Manchester Street, every 10 Minutes from 9.10 a.m. to 10.20 p.m.

Fare, 2d. each way.

Discount Coupons will not be accepted on Exhibition Cars.

Trams from Railway Station for Papanui, via Colombo Street, every 10 Minutes from 6.45 a.m. to 8.5 p.m. Every 20 Minutes from 8.5 p.m. to 11.5 p.m.

Passengers for Exhibition, via Papanui Cars, may alight at Baxter's Corner, 2 minutes' walk to Exhibition.

From CTB Timetable, December, 1906. (enlarged).



California Combination number 5 in Park Terrace on the Exhibition loop line, outside the main gates of the Exhibition.

Photograph: Canterbury Museum.



A scene from the International Exhibition of 1906-1907, at North Hagley Park, looking towards the main Exhibition buildings.

Photograph: Beken Collection/ Canterbury Museum.



Front view of the International Exhibition buildings in North Hagley Park.

Photograph: "Weekly Press"/ Canterbury Public Library.



Double-decker tramcar number 26 heading south along Colombo Street: High Street on the left. Note the centre poles along both Colombo and High Streets. Note also the wire hoop on the tramcar's upper deck, designed to prevent the trolley-pole falling on passengers, and the colour symbol at the front end of the tramcar.

growth of the tramway enterprise

The citizens of Christchurch have not at any time had reason to regret their decision to control their own tramway service. The improvement in the facilities has been enormous since the Tramway Board came into being, and the financial results of the venture have been on the whole very satisfactory.

These words were written in 1910 by the editor of the "Lyttelton Times". He went on to say that the Board's profit was not large, "but it is not the business of the Board to make money."³⁶

Since 1905 the growth of the tramway enterprise had been impressive, outstripping the original expectations. Following a relatively modest beginning in the first year of operation, during which almost 5,000,000 passengers were carried for a total gross revenue of £43,109, by the 1907-8 financial year the passenger numbers had more than doubled to over 10,500,000, as had the gross revenue, which was £91,083. During 1909-10 these figures had grown to over 12,500,00 and £105,024, respectively.

But by 1912 a degree of uncertainty had crept into the picture. Despite the fact that growth continued to occur, the Board had become aware that its tramway enterprise was not without difficulties. In his annual report for 1912, the chairman, George Booth, outlined these problems.

The first was the burden of "long-haul traffic" — necessitated by the fact that because of the flat nature of Christchurch its population was thinly spread over a wide area — which

was "apt to throw a strain upon the finances by increasing tramway mileage and running costs." He went on to comment, "... it is the short-haul traffic that pays, the traffic that yields two or three fares per seat per section, with full cars. Where suburban, long-haul traffic [e.g. the tramlines to Sumner and North Beach] is catered for, the fares almost invariably tend towards a point at which they cease to be profitable."³⁷

The second concern was competition from bicycles and, increasingly, from motor vehicles. With the development of the pneumatic tyre, the bicycle was to become a constant and worrying rival. The bicycle problem was more severe in Christchurch than elsewhere in New Zealand because of the city's flat terrain. The number of bicycles in Christchurch was estimated to be "from 20,000 to 30,000, probably from four to ten times as many [as] in other cities". Although competition from motor vehicles was not yet serious, their increasing popularity was noted by the Board — the motor vehicle, too, seemed to have caught on in Christchurch faster than elsewhere. According to the chairman's 1912 report, there were as many as 2256 cars and motorcycles in Christchurch, compared with 802 in Dunedin, 735 in Wellington, and 690 in Auckland.³⁸

The chairman went on to make the following comment :
... it is beginning to dawn upon the intelligence of citizens in many towns, in Great Britain and elsewhere, that to administer a Municipal Tramway undertaking efficiently, even under apparently favourable conditions, to render reasonable service

at popular rates, and to produce a satisfactory balance at the year's end, is by no means an easy proposition.³⁹

Two years later, in 1914, despite implementing measures to deal with these problems, the situation was no better. The chairman, James Flesher, complained that,

It is often urged that all that is needed to make electric trams pay is to run a more frequent service. Experience in Christchurch, with its scattered population, its thousands of cyclists and easily traversed country, supplies the answer to this contention, and proves that in a tramway service, as in any other business, there is a point at which the demand is not only overtaken, but passed by the supply. It seems to me that that point has already been reached . . .⁴⁰

By 1914 the Board had completed the construction of its tramway network. After that year no major tramline construction took place. From the 21 miles 67 chains of tramline taken over from the private companies, by 1914 the Board had a total of 53½ route miles, 8 miles of which were double track (in all, including passing loops, 63¼ miles of track).

Christchurch's tramway network was easily the most extensive in the country at this time and for many years after. Indeed, in the annual report for 1912, figures were released showing that as far as route miles were concerned, Christchurch was second only to Sydney in Australasia.⁴¹

The lines constructed and electrified after the initial tramway contract were St Albans Park (opened December 24, 1906), Opawa (opened for steam, March 14, 1907; for electrics, September 21, 1909), Fendalton (for steam, May 3, 1907; for

electrics, November 20, 1909), Cranford Street (July 1, 1910), North Beach (for steam to Richmond, December 27, 1906, to North Beach, November 1910, to New Brighton, December 24, 1911; for electrics to Burwood, August 15, 1910, to New Brighton, October 1, 1914), Spreydon (August 3, 1911), Cashmere Hills extension (May 1, 1912), Dallington (November 1, 1912), the Northcote extension of the Papanui line (February 28, 1913), St Martins (April 7, 1914), and the Plumpton Park (now Wigram Aerodrome) extension of the Riccarton line (December 1915 — January 1916).⁴²

Several of these tramlines are of particular interest. The first of these was the Sumner line, the construction of which involved impressive feats of engineering, including two causeways and one viaduct.

In the private tramway company days the Sumner line had skirted McCormack's Bay; negotiating the curves of this line slowed trams a great deal. Chamberlain, the Board's engineer, decided to have a causeway constructed across the bay, thereby speeding up the service. In 1903 an application was made to the Lyttelton Harbour Board — and approved.

The causeway, about three-quarters of a mile in length, was constructed across the Estuary from the foot of Mount Pleasant Road to "the cutting" (so called because it was blasted out of the rock). The construction was a major task. A stone wall was necessary on both sides, the northern flank of which had to be strong enough to resist wave action. Allowance had also to be made for the wall sinking into the mud. Three culverts were provided for tidal flow. The construction materials came from Andrews quarry, and the original contractor was Charles O'Malley.⁴³ For some reason he relinquished the job and it was completed by Frank Blogg. The causeway was first used by electric trams in April 1907.



The McCormack's Bay causeway, a part of the initial construction contract, looking from the Sumner end. The road on the left is where the old tramline went.

Photograph: D. Barr Collection/Canterbury Museum.



Scene of rock-slip at Shag Rock corner, 1912. Double-decker tramcar number 26 maintains a temporary service while men, drays, and horses clear the blocked line. The second causeway, built in 1916, bypassed these cliffs.

Photograph: "Canterbury Times"/Canterbury Museum.

A second causeway was constructed just before Sumner, at Clifton Heights. "The Press" in April 1916 announced its opening:

Yesterday morning, the trams commenced running across the new causeway at Sumner which had been built to remove the tramlines from under the cliffs, thus doing away with any danger from falling rocks. Shortly after 10 o'clock on Saturday evening they put on a gang of about 25 men and these worked all through the night in shifting the old line and connecting it up with the causeway. Special electric lights were arranged for the night work and the work was sufficiently far advanced to allow the traffic to commence by 10 o'clock yesterday morning. . . . The first tram yesterday morning was crowded, a large

number evidently travelling for the purpose of being on the first passenger tram to cross.⁴⁴

In the late 1930s a road was constructed on the landward side of the causeway, and thus the causeway disappeared as such.

The viaduct, which crossed Clifton Bay (near Sumner), was a wooden one originally built by the Canterbury Tramway Company. The Board strengthened the old viaduct in preparation for running its electric trams from April 1907. It was reconstructed twice during the 1920s. In the 1950s a road was built alongside the viaduct on the landward side. After the last tram had run to Sumner in 1952, the rails were removed, and the bay was filled in after the removal of the decking, thus leading to the disappearance of the viaduct, which remains buried to the east of the existing roadway.



Double-decker tramcars hauling saloon double-deckers across the viaduct over Clifton Bay, on the way to Sumner.

Photographs: D. Barr Collection.

The Cashmere Hills extension, completed in 1912, was the only hill tramway in Christchurch. By the end of 1911 the Cashmere line had been extended around the foot of the hills to the bottom of Hackthorne Road. Construction of the hill section of the line continued through the early months of 1912, until it reached the terminus at what is now the Sign of the Takahe. The extension was opened on May 1, and soon developed into a very popular line, especially for those who liked to go strolling about the hills, a popular leisure-time activity of the day.

Because until now the Board's operations had been confined to the flat, the new line meant that motormen had to acquire additional driving skills, and extra and independent braking would be required on the trams to maintain safety. The gradients of the line were very steep in places, which caused motormen considerable difficulty when stopping on slopes and getting started again. Such was the concern about the safety factor that at the beginning of a shift motormen had to test their brakes to ensure they were working properly.

Often in electric tramway systems the distant parts of the network suffered lack of power, due to distribution characteristics and consumption of power by tramcars nearer the power source. The Cashmere Hills extension was a good

example of this phenomenon, which was exacerbated by the additional power required for the tramcars to climb the hill. When the extension opened there was only sufficient power to take two tramcars up the hill at once, and they could not haul trailers with them (trailers were unhitched at Barrington Street and picked up on the return to Cathedral Square). When power overloading threatened, passengers were asked to alight, often leading to objections. Not until the early 1920s when an automatic substation was constructed in Barrington Street next to the river did the situation improve; and even then, tramcars could still not haul trailers up the hill. A further reason for not using trailers concerned safety. One can only imagine the dangers resulting from a runaway trailer.

For track maintenance on this line, one tramcar, "Yank" number 14, which was equipped with more powerful motors than in the other tramcars, was able to get ballast waggons up the hill; but these were pushed (that is, ballast waggons first) rather than hauled.

Five of the "Yank" tramcars were specially equipped for operation on the extension in 1912, because the "Hills" cars were not yet ready for use. Later that year 10 combination Hills cars were built. Yanks and Hills cars were the only tramcars used on the line.



"Yank" car at the Dyers Pass Road/Colombo Street terminus of the Cashmere line, prior to the construction of the Cashmere Hills extension (completed in 1912). The people on the left have just alighted from the tram. The house on the left is still standing. Note the absence of route number discs on the Yank.

Photograph: Canterbury Museum.



"Hills" car at the bottom of Colombo Street, about 1920. Dyers Pass Road behind the tramcar.

Photograph: Canterbury Museum.



"Hills" car on the Cashmere Hills, near the corner of Dyers Pass and Hackthorne Roads, 1919. Note the route number discs at both ends of the roof (number 2 signifies the Hills route terminus), and the two trolley-poles, which improved safety and convenience. The small kiosk on the corner is a telephone box.

Photograph: Canterbury Museum.

A tramline that provided the Board with a number of political headaches was that to North Beach. Perhaps the most surprising thing about this line was the fact that it was reconstructed at all. The City and Suburban Tramway Company had constructed the line in the early 1890s, establishing a route through sparsely populated country to New Brighton.

When the Board took over the City and Suburban Company's assets in November 1906, it was reluctant to have much to do with the City and Suburban (later North Beach) line because it knew the line would not be an economic success. Despite these misgivings, a service from Cathedral Square to Richmond was initiated toward the end of that year. As a result of pressure from people who lived near the line, the service was electrified in August 1910 as far as the Burwood church, with drags running the rest of the way to the beach. In November of the same year a steam service was initiated between Burwood and the beach, and just over a year later the steam service was extended to New Brighton Pier.

At the end of September 1914 the wishes of the people of North Beach were met when the electrification of the line to The Pier was completed. The "Lyttelton Times" announced the official opening of this line:

Red, white, and blue ribbons, held by two little girls attired in white, and stretched across the tram track, just past the terminus of the electric car run at Burwood, were broken yesterday by the official electric car, and an agitation lasting over eight years was closed.

When the Christchurch Tramway Board took over the City and Suburban tram system there was a line running from North Beach to The Pier, but this was discontinued. The agitation commenced at once and gradually, bit by bit, the old route has been restored, until yesterday it was placed on an equality with the other city tram services and operated by electricity.⁴⁵

The Board soon found that it had been right about this line: the North Beach service did not pay. When the permanent

way wore out in the 1930s replacement of the track could not be justified, and the trams were replaced by trolley-buses.

The coming of the First World War was, in part, responsible for the end of major tramway construction in Christchurch. In the first place, shortage of materials during, and in the years following, the War meant no tramway expansion could take place at that time. Second, although patronage had remained high during the War — "the growth which each year has marked the tramway business since its inception," announced the chairman in 1917, "has been in no wise checked"⁴⁶ — after the War came a tightening of the economy, which meant that the natural growth of tramway patronage did not increase to the extent the Board had hoped.

During the War the Board did its bit for the cause by supplementing the military pay of its employees who were on active service, "in order to assist those dependent upon them". In 1916 the weekly outlay for this was a total of £35. When engaging employees, the Board preferred "suitable returned soldiers, and . . . men who enlisted but subsequently proved unequal to military requirements."⁴⁷

The Board's attitude at this time of deep patriotic feeling is reflected in comments made by its chairman in 1919:

It is . . . with considerable satisfaction that one looks back on the attitude of the Board and its officials, who each and all recognised that the fight was a fight for freedom.

With respect to the attitude of the staff . . . they also have risen to the occasion. While those over military age sent their sons to the front, and others failed to pass the military test, 103 were successful in passing and went on Active Service. Of that number 10, I regret to report, have made the greatest of all sacrifices, while 33 have still to return.⁴⁸



Patriotic scene toward the end of the First World War, Cathedral Square.

"Weekly Press"/Canterbury Public Library.

Because Christchurch's electric tramway system was so extensive, and several of its lines proved unprofitable, the Board came to depend very much on its more popular lines for financial success. In consequence, these popular lines, most notably those to Papanui and the Cashmere Hills, became the "backbone of the system".⁴⁹

The Board also depended very much on the harvest from holiday traffic, gala days, race days, and sporting occasions. If the weather was fine during such times, thousands of people would flock to the trams, providing a boost to the Board's fortunes. If, on the other hand, holiday traffic was adversely affected by the weather, the Board would experience a comparatively lean year.

During the particularly busy times, much of the Board's fleet was on the road, including its steam motors — if the crowds were large enough the Board would not hesitate to use even its most dilapidated trailers to carry them. A "Press" report describes such a busy scene, on Show Day, 1906:

All day long Cathedral Square was the scene of life and bustle as the electric cars plied to and fro, stopping for a moment amongst the crowd practically empty, the next to be filled completely with human freight on pleasure bent.

... Five engines and 40 cars comprised the service to Addington, and about 260 car loads of passengers were taken out to the Show and trotting meeting. The trams traversed Colombo Street, Moorhouse Avenue, and Lincoln Road on their outward journey, returning via Lincoln Road. This service obtained from quite an early hour, the intervals between each car being about 2 minutes. With regard to the Exhibition line, the trams had been well patronised during the day, but the traffic became very heavy at night, and greatly taxed the available cars. The Sumner and New Brighton lines also carried a fair number of passengers.⁵⁰

To service the Board's expanded operations, more rolling stock was required. From the 27 tramcars at the beginning of its operations, the Board quickly increased the number to 39 by 1908; in 1912 the figure was as high as 65. As for trailers, in addition to those taken over from the private companies, another 34 were built before 1920. The Board also purchased a secondhand Baldwin steam motor from the New South Wales government in 1906, thus giving it a total of eight steam motors. Three sprinkler cars and an overhead line car had also been acquired.

To operate this growing tramway enterprise the Board increased the size of its staff to the point where it became the largest employer in the city. From just 196 employees in 1906, the number had increased to 350 by 1913; in 1920 the number was 530.

Increasing consumption and rising costs of electricity forced the Board in 1912 to look to additional supplies of power. At the time a hydro-electric power station was under construction at Lake Coleridge, so the Board began negotiations with the government for a power supply.

Agreement with the government was reached in August 1916; trams were soon operated by hydro-electric power. Part of the old steam plant was maintained and used when the Lake Coleridge power was cut off for any reason. A little over an hour was required for the steam plant to be generating power, but only a reduced supply could be provided. Generation of power from Lake Coleridge became increasingly reliable, however, as time went on.

The electric tramway network brought major social change to Christchurch, becoming a prime factor in the increased pace of suburban development. This effect had been anticipated back in June 1905, when a "Press" reporter wrote that, "The provision of an up-to-date tram service will . . . [induce] the citizens to live in the suburbs . . ."⁵¹ Houses quickly sprang up along the tram routes and land values increased.

Henry Wigram noted that,

The advent of the electric tramway system has made a great difference to the citizens of Christchurch, enabling them to live at a distance from the city, where they can avoid crowding and enjoy the pleasure of gardens; but the most striking alteration that has taken place is in the growth of hill suburbs at Cashmere, and round to Sumner, to the great advantage of the health of the people.⁵²

Shop proprietors in Christchurch, like their counterparts in other cities and towns, took advantage of the concentration of people at a single point caused by the tramways. During Christchurch's electric tram era the city's central shopping district gravitated from High and Manchester Streets and the Christchurch Railway Station to north and south of Cathedral Square. Also, in the suburbs small shopping centres sprung up at termini, such as at Fendalton, Spreydon, and Opawa, and grocery and ancillary shops proliferated at intermediate tram stops.

tramway trials and tribulations

the saga of the tramway shelter

Cathedral Square, as in the days of the private companies (with the exception of the City and Suburban Company's line), was the focal point of the city's tramways. All routes either passed through or terminated in the Square, and every day thousands of passengers boarded or alighted from trams there.

Soon after electric services began, the provision of a shelter in Cathedral Square for tram passengers was suggested. It was decided, at a conference between the Board and the City Council, that a shelter be constructed with a passenger's waiting room, lavatories, ticket office, bookstall, and a room for a cabmen and carriers' telephone. The cost of the shelter was to be shared equally between the Board and the City Council.

Final agreement was never reached and it was left to the Board to erect its own shelter in 1907 between the Godley statue and the tramlines in front of the cathedral. Once erected, the shelter met with a great deal of criticism from members of the public who were dissatisfied with its appearance and the fact that it obscured the Godley statue.

One of the main detractors was Hurst Seager, a well known architect whose work is still highly regarded today. Seager, a member of the Christchurch Beautifying Association, described the shelter as "an appalling ugliness". It was ironic, then, that the Board should have received a voucher dated January 10, 1908 for "professional services, preparing sketch plans, working drawings and specifications, obtaining tenders and supervising the erection of the tramway shelter, commission £30.5.0", which was signed, "Hurst Seager, Wood & Munnings, Architects". Seager, perhaps, had not been aware

that his partners had been involved with the shelter he so much despised.

In 1916 the Christchurch Beautifying Association held a competition which focused on designing a better shelter and improving the general layout of the tramway system in Cathedral Square. The winners, Messrs Hart and Reese, designed a scheme which was described by the assessor as one that "with one or two alterations would convert Cathedral Square into by far the most attractive civic centre in the Dominion . . ." The elaborate design called for a building that would comprise "north and south shelters connected by a covered colonade on the east and west sides, thus forming . . . a continuous shelter of pleasing form."

The scheme proved popular with everyone except the Tramway Board, which pointed out that as passengers entered and alighted from trams on the left-hand side, it would be impractical for conductors to change over doors, gates, or sidebars in time for right-hand exit in the Square.

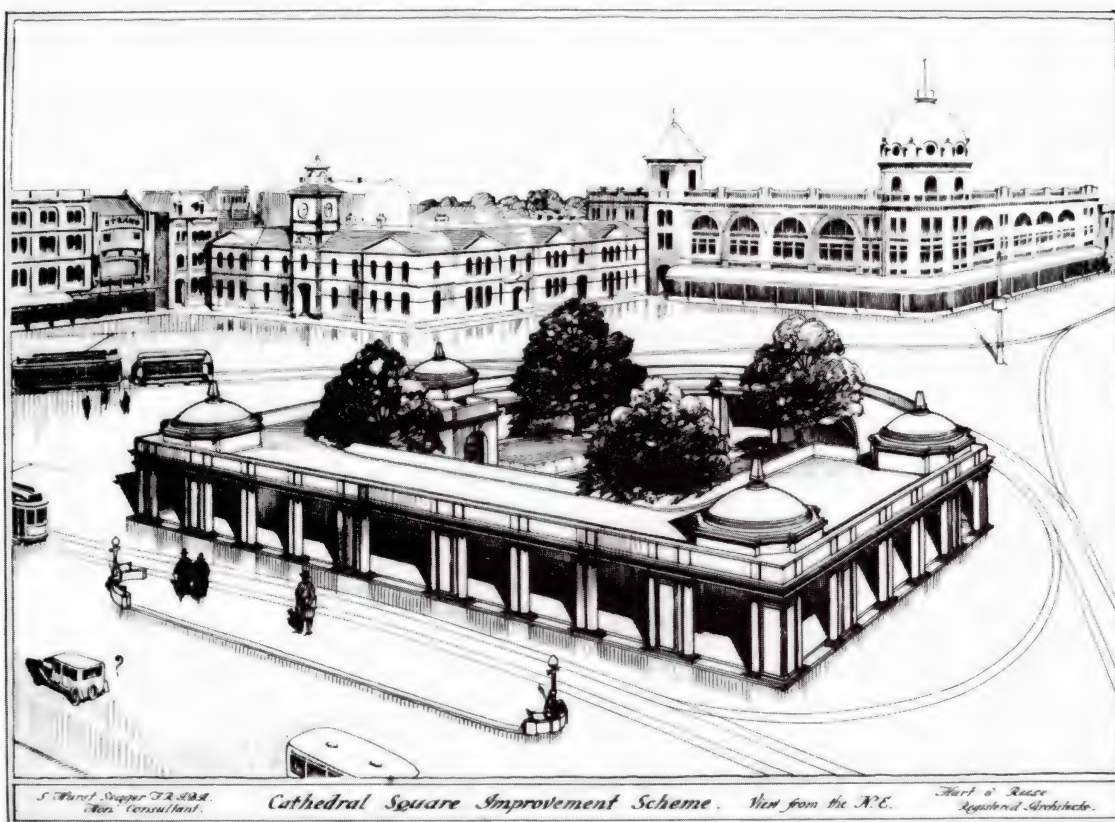
The Board decided in favour of its own scheme in which the existing shelter would remain and the south track would be moved nearer to the cathedral so as to improve passenger safety. This change in the existing layout had to be made urgently as some of the pointwork in the Square had worn out, so the Board applied for an Order-in-Council to authorise the relocation. Protests were loud from the City Council and other groups who did not want to see the tramline run so close to the city's beloved cathedral. After much controversy, the Minister of Public Works declined to sanction the alteration.



Passengers boarding "Boon" tramcar number 159, bound for Fendalton, at the Cathedral Square tram shelter.



The tram shelter in Cathedral Square, built in 1907 and removed in 1931, blocking the Godley statue. Men's underground conveniences at right foreground.



Hart and Reese's winning entry for the Christchurch Beautifying Association's 1916 Cathedral Square Improvement Scheme.

Nothing happened for some years; the tramlines were re-laid without alteration and the shelter remained. The Godley statue, however, was moved to a site north of the cathedral now occupied by the Citizens War Memorial.

Some changes were made to the tramline layout in 1922, but the matter of the tramway shelter remained unresolved until 1930. In that year, during a court case brought by George Gould of the Save the Square Committee, it was discovered that the land on which the shelter stood was Reserve land, and thus, the Board had no right to construct buildings on it, so the existing shelter had to be removed. In 1931 the shelter

was demolished and two "temporary" shelters were constructed outside the Reserve, using materials salvaged from the old shelter. These remained in Cathedral Square until 1973, when yet another design competition resulted in their removal. Subsequently the Godley statue was returned to its original position.⁵³

The two temporary shelters found their way to the Ferrymead Historic Park in 1973. The former south shelter has now been erected as part of the Ferrymead tramway system, while the other shelter awaits reconstruction.

special rating areas

Because the Tramway Board had no capital, it had to raise loans to enable it to construct tramways. Security for these loans was the power to rate on the properties in the district where the tramlines were constructed to ensure that principal and interest on the construction loans were paid.

If the people of a district wished to have a tramline constructed in their area, it was often necessary — especially if the Board had doubts about a proposed line's profitability — for them to form a "special rating area" in the district, so that security could be given by way of a rating power. To calculate whether a special rate should be made against properties in a special rating area it was necessary for the Board to keep accurate separate accounts of revenue and expenses for each of the areas.

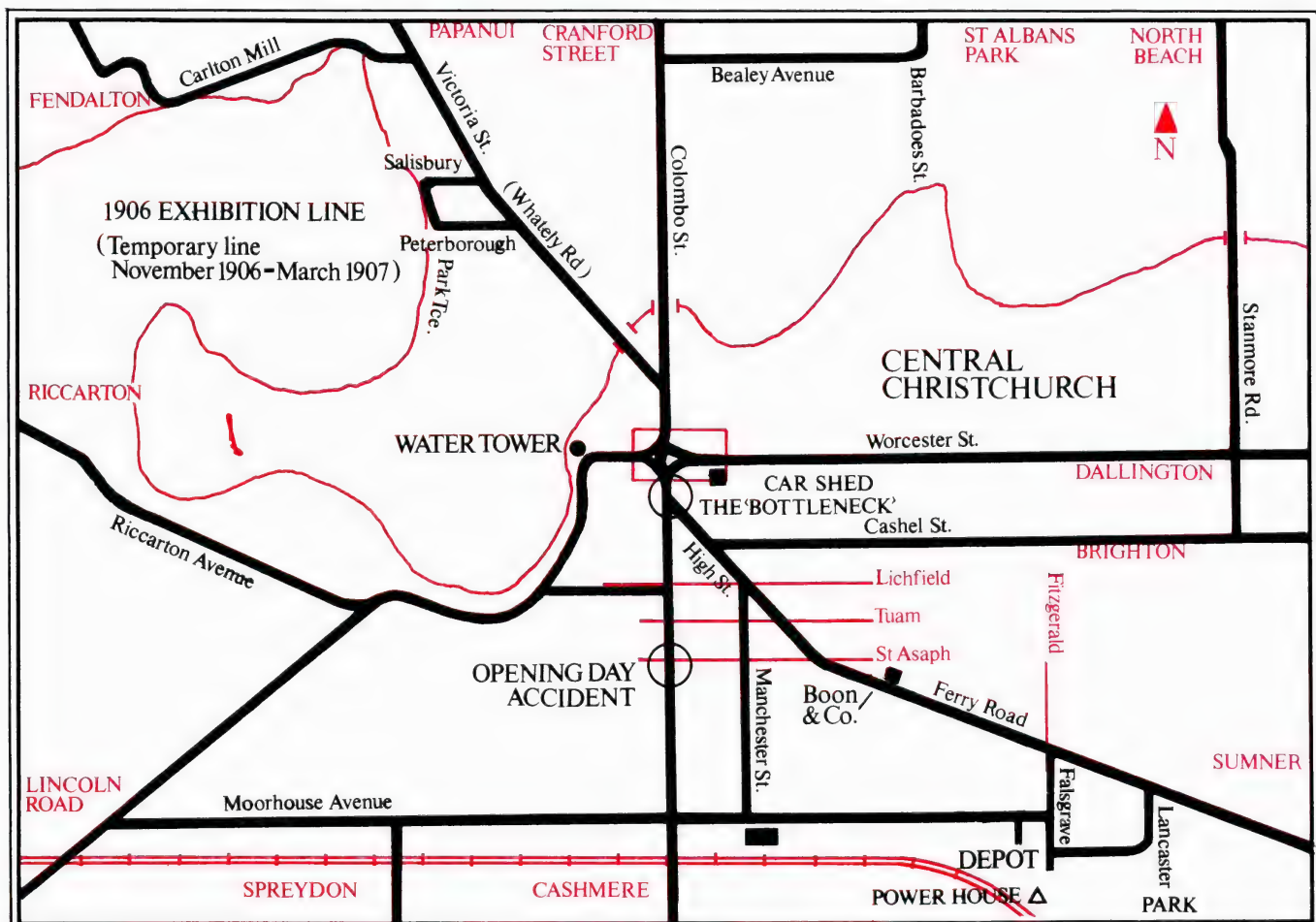
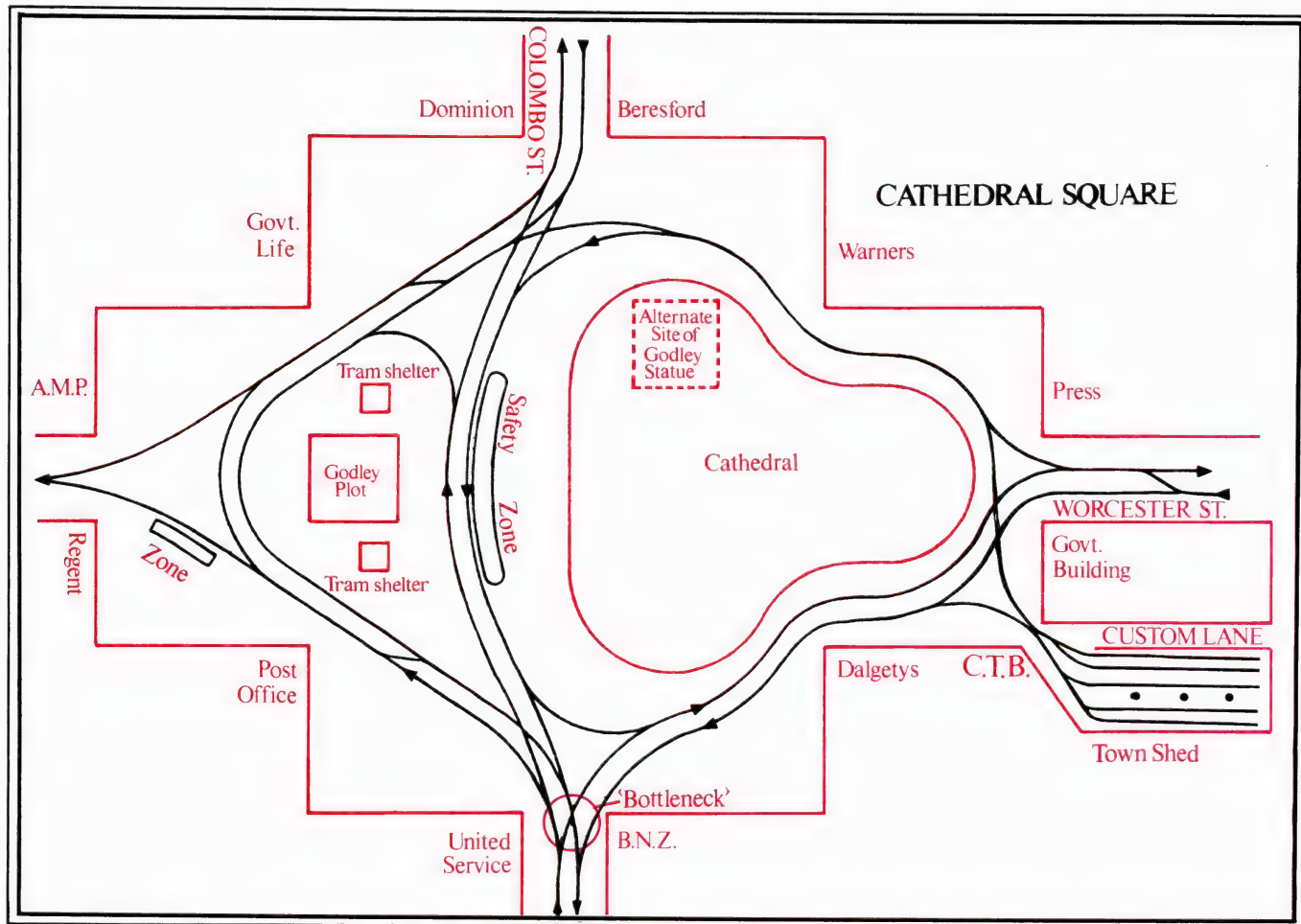
The first special rating area was Riccarton in 1905; others were required for the construction of the Fendalton, Dallington, Northcote extension, Cashmere Hills extension, and St Martins lines.

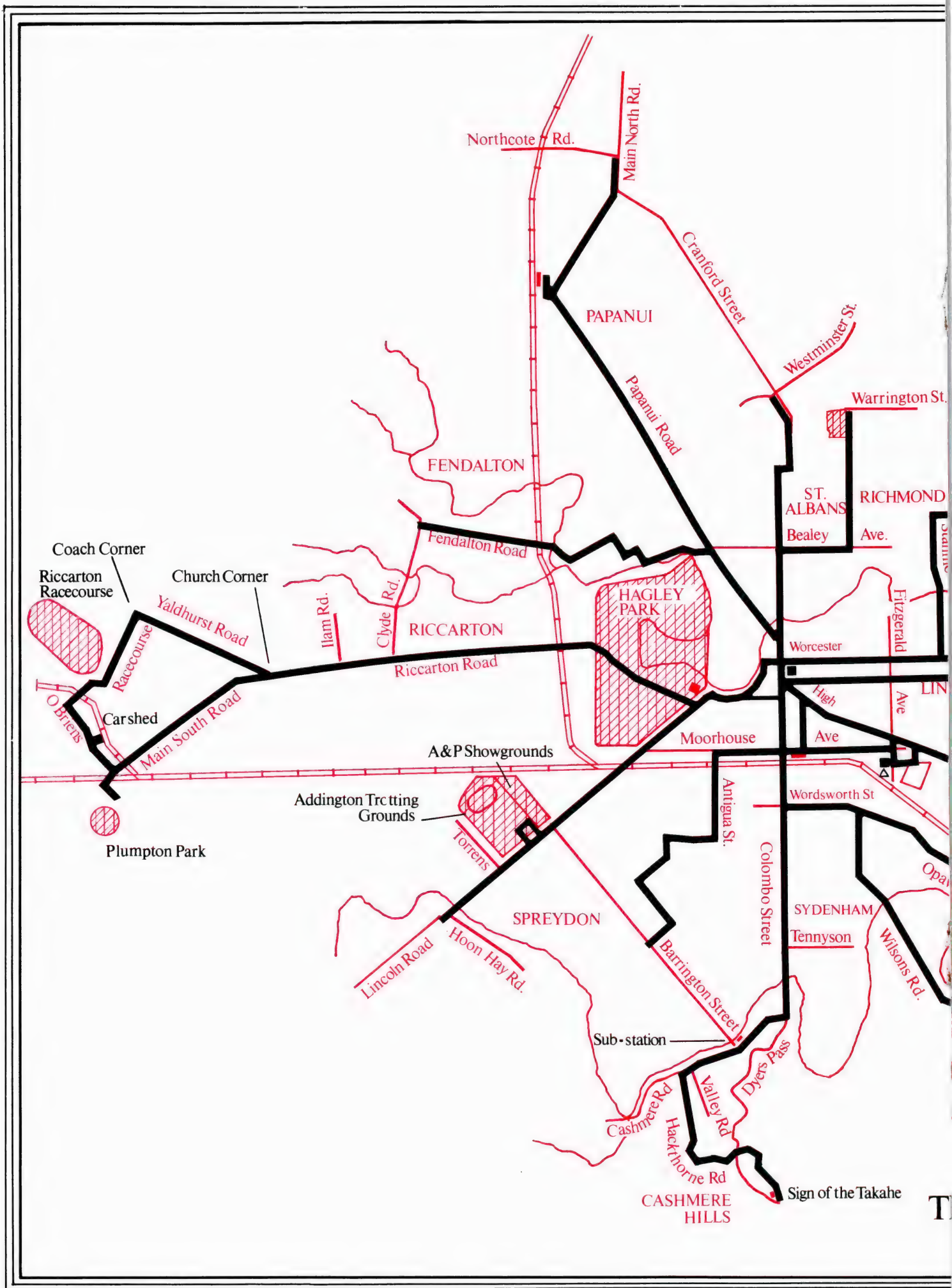
Although the theory behind the special rating areas appeared sound, it did not work out in practice. A flaw which invalidated the tramway rate was discovered: although the creation of

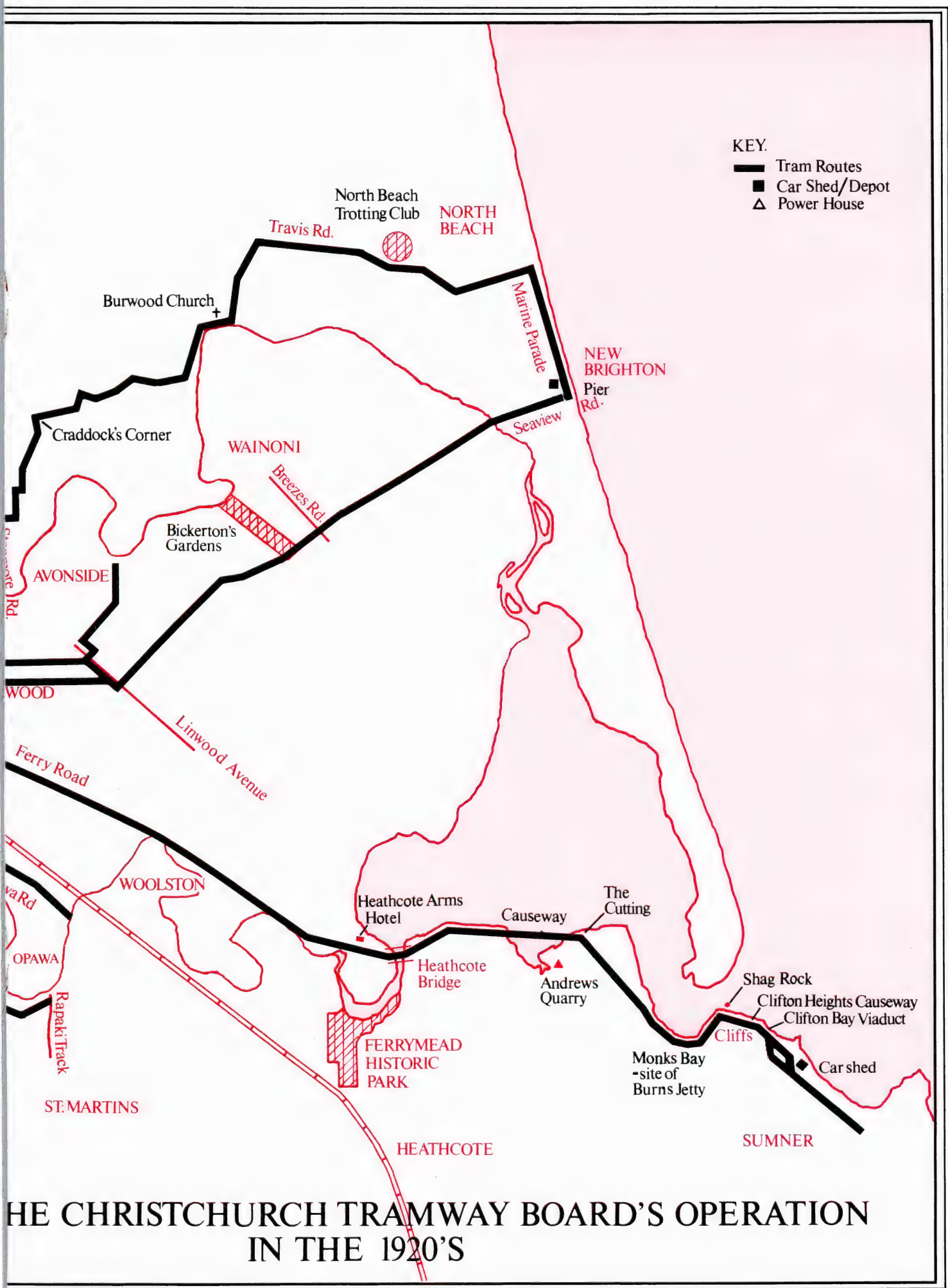
special rating areas with rate liabilities was found to be in order, there was no legal provision existing for the keeping of separate accounts. In consequence, the accounts of the special rating areas were merged in 1918 with those of the main area, and the collection of the special rate ceased. Thus the financial losses suffered by the tramlines of the special rating areas had to be borne by the whole tramway district. The Board later conceded that the policy of special rating areas, while having "much to commend, had too many disagreeable features attached to it."⁵⁴

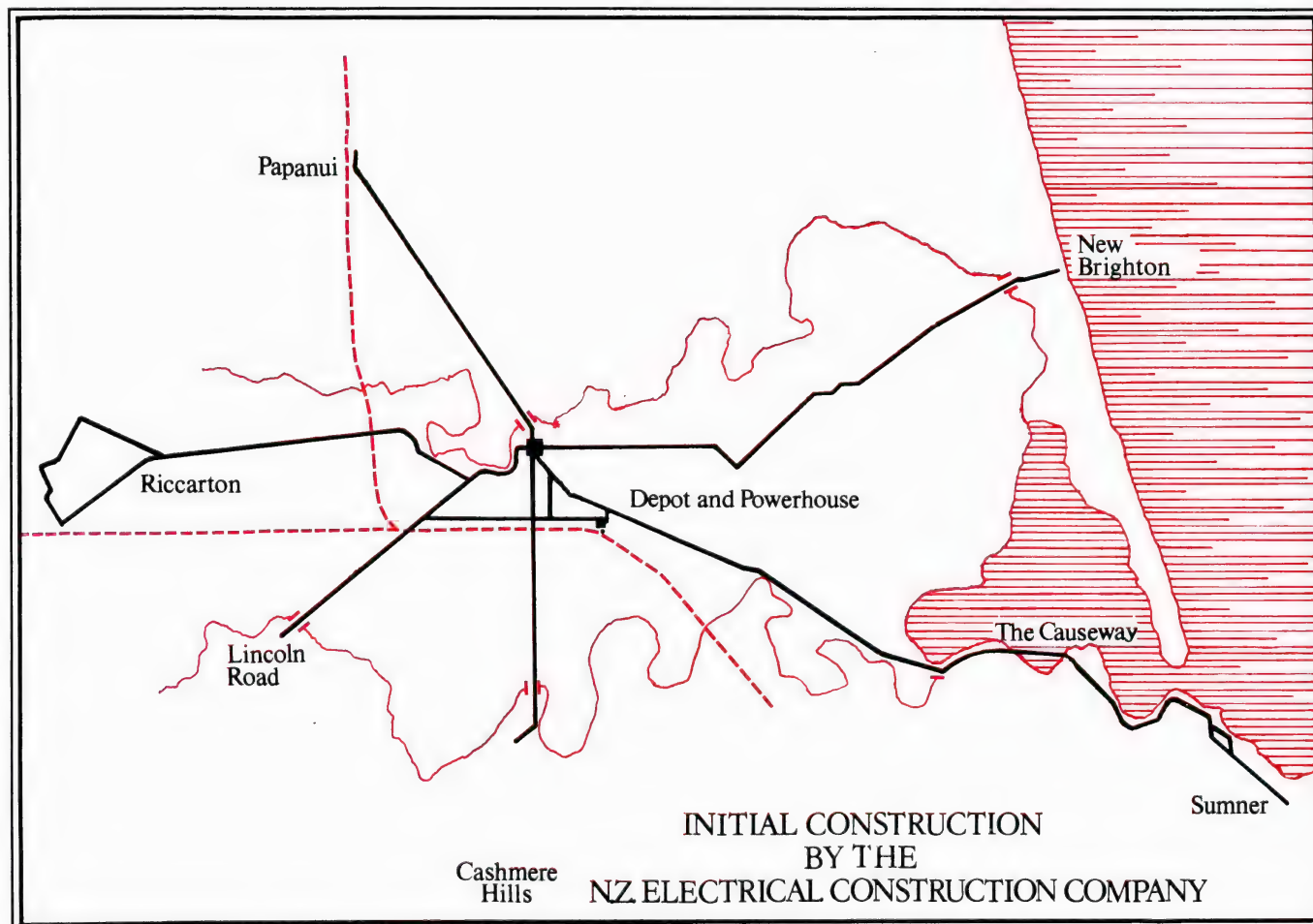
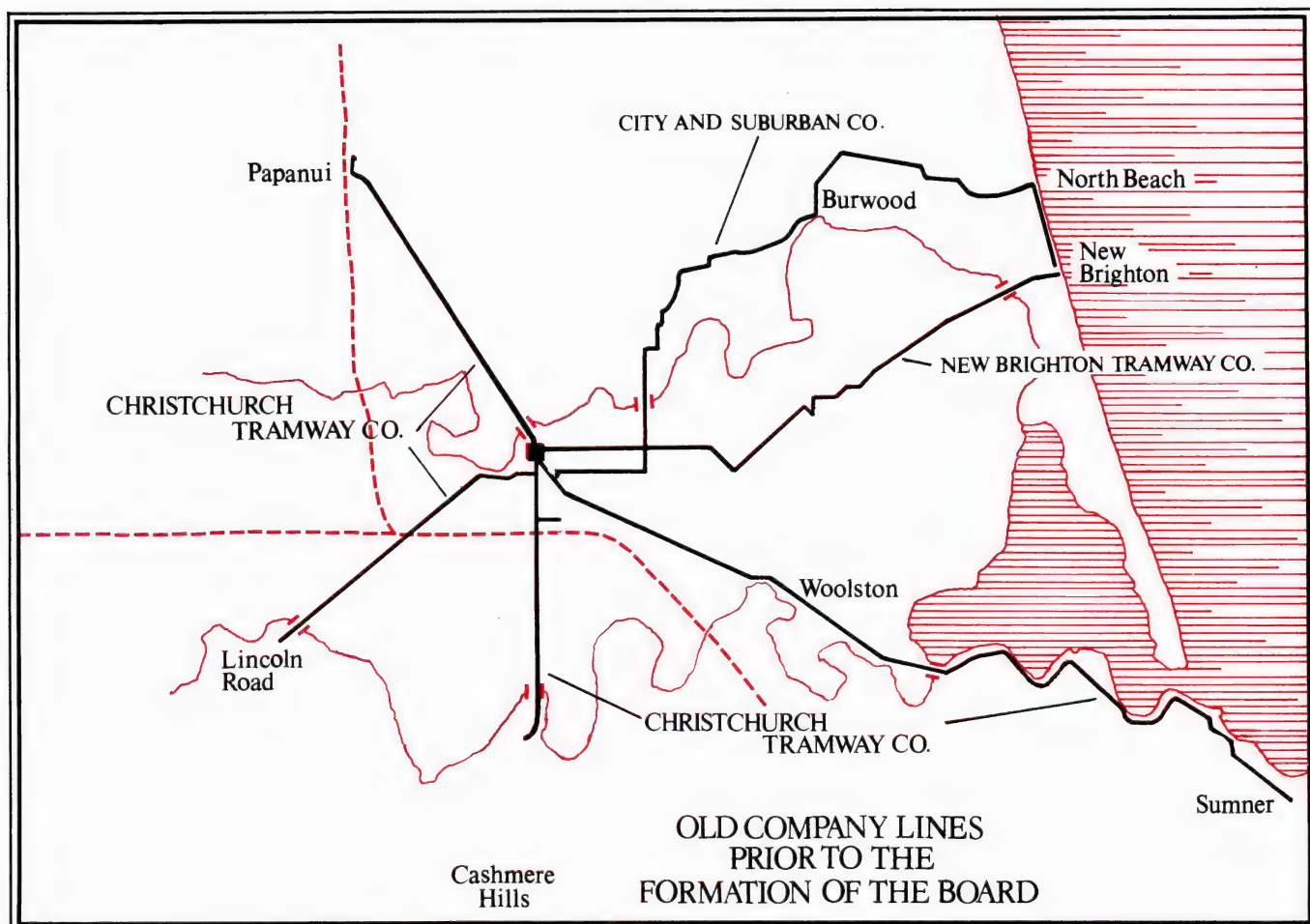
During their time, the special rating areas were a major irritation to the Board, as the following extract from the annual report of 1914 suggests: the chairman commented that "already there are signs of a desire on the part of those who, by their votes, in sanctioning the necessary loans, assumed full responsibility therefor, to shift the blame on to the shoulders of the ratepayers of the main area". He went on to say,

No section of the community has the right to saddle the whole with liability for any undertaking carried out for the benefit of the few, unless the main body is afforded an opportunity of sanctioning or rejecting the proposed work.⁵⁵









battling the “dust fiend”

In the days before sealed streets in Christchurch, one of the biggest headaches for the city authorities was dealing with the dust which in the summer months was whipped up by nor'west winds from the dry roads, infesting the air, getting in people's eyes, and over their clothes. The city of Christchurch suffered badly from this problem, which came to be labelled by some, the “dust fiend”. A newspaper reporter noted that, “What the wind is to Wellington, the dust is to Christchurch”. It was also believed that dust was a factor in the spread of disease. “There is no doubt,” wrote a reporter, “. . . that dust

is charged with microbes of disease, and is a fruitful cause of the spread of consumption and other diseases.” When the Tramway Board's speedy electric trams ran up and down the streets the dust problem was exacerbated.

Watering the streets was the most satisfactory means of alleviating the nuisance. The Tramway Board watered only the road between the rails, and 18 inches either side, this being the portion for which it was responsible; the local bodies watered the remaining portion of the road.



The two trailer sprinklers acquired from the Christchurch Tramway Company, with a Kitson steam motor in front, at the Worcestor Street bridge siding.

At the beginning of its operations, the Board's dust abatement plant consisted of three sprinkler cars. Two wooden trailer sprinklers with tanks of 1300 gallons capacity were acquired from the Christchurch Tramway Company. They were obviously inadequate, however, and the Board had to look to obtaining more efficient sprinkler equipment. This took the shape of a sprinkler car (number 1) built by John Stephenson and Company of New York, part of the initial order of tramcars. It became affectionately known as "Wet Willie", had a capacity of 1850 gallons, and remained in use until the last days of the tramway system. An eight hour shift with Wet Willie was sufficient to water 18 to 20 miles of track, once each way, using 17,000 gallons. Wet Willie was originally painted in green livery and for many years carried a well known advertisement, "Watch This Steelite Green Stay Green", painted on the tank.

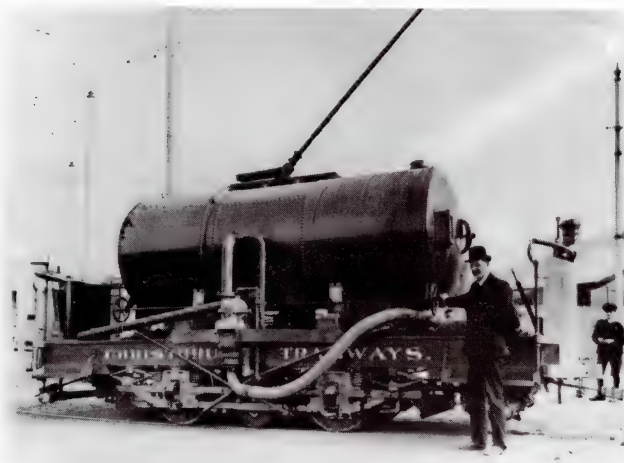
To fill the tanks of Wet Willie and the other sprinkler equipment, water tanks were scattered widely about the city. Some of these had originally been installed to replenish the boilers of the steam motors in the private company days.

It soon became clear that as the Board was watering its own portion of the road it would be sensible if some arrangement could be reached between the Board and the local bodies whereby the Board would water the whole width of the road on a contract basis. This arrangement, common in many places overseas, would reduce costs.⁵⁶ Dust abatement conferences were held among the interested parties during 1906 and 1907, the result of which was an agreement between the City Council and the Board.

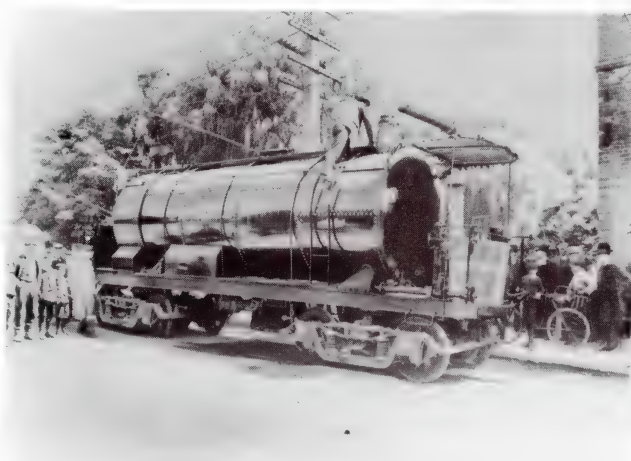
To fulfil its new task, the Board ordered two further sprinkler cars of similar design, one to be supplied by the American firm, McGuire Cummings Company of Chicago (number 2), and the other by Cooper and Duncan of Christchurch (number 3). The former entered service in 1908, and the latter the following year. These sprinklers, each of 5000 gallons capacity, could water one mile at a cost of 1/9 pence per application of a width of 44 feet. Unfortunately, they were found to be so heavy when full that they damaged some sections of the track, especially those where 63 pound rail had been used, as on the Opawa, Fendalton, and Burwood lines. Their usage was consequently limited. Such was their weight, in fact, that they set the standard for the strength of bridge structures: if a bridge could cope with their weight it could cope with anything.

As the sprinkler cars went about their duties — operating to a special timetable — they sometimes caught members of the public unawares, soaking them as they stood at the side of the road or when they boarded or alighted from trams; complaints often followed. Complaints were also received from people whose horses were soaked or frightened by the sprinklers, and from shopkeepers with goods on display outside their shops which suffered damage by water from the sprinklers.

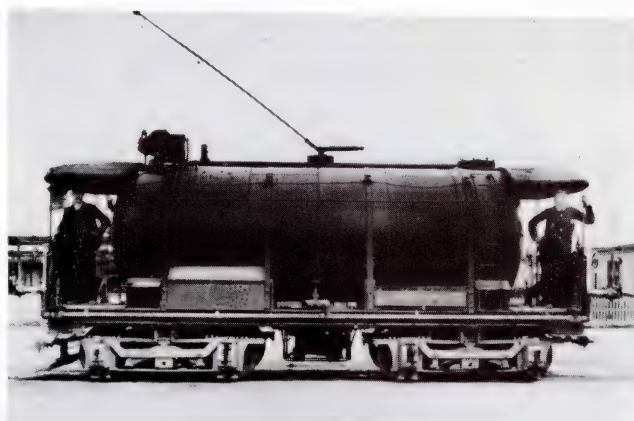
As the years rolled on more and more streets were sealed, and the use of sprinkler cars diminished. In 1916 the total mileage run by all sprinkler cars was still as high as 14,270 miles; in 1920 it had fallen off to 4611 miles.⁵⁷ By the late 1920s street watering had become a thing of the past. Wet Willie remained in service, to be used for flushing out pointwork and pointdrains; sprinkler cars numbers 2 and 3 were used as snowploughs for a time during 1926 to 1930, but were scrapped in 1939.



"Wet Willie" sprinkler car, part of the initial order of tramcars from John Stephenson and Company of New York.



Sprinkler car number 2, built in Chicago in 1908 by McGuire Cummings Company, at the Worcestor Street bridge siding, being filled with water.



Sprinkler car number 3, built in 1909 by Cooper and Duncan of Christchurch.

the board helps fight the “great ‘flu” of 1918

Towards the end of 1918 Christchurch, along with many other places in the world, was held in the grip of an influenza epidemic which claimed many lives. No section of the community was spared from its effects — including the city’s tramway employees. The Board reported in 1919 that,

To such an extent was the staff affected that it was necessary to advertise a curtailment of the usual services, and no cars were run on Sundays from November 17, and from November 19 the last car was scheduled to leave at 8.15 pm. The usual timetable was not resumed until December 8.⁵⁸

As a consequence of the reduced mileage, the Board lost an estimated £3000.

In spite of the problems it experienced during the epidemic, the Board assisted the Public Health Department in its efforts to cope with the sometimes fatal disease, by converting 23 of its electric cars into “inhalation chambers”, which were placed in convenient positions around the city and suburbs.

Whether these chambers helped or hindered the spread of the disease is open to question.

The treatment provided in the inhalation chambers was described in “The Press” in 1918:

... about 30 persons are admitted to the chamber at one time. They stand in front of a table, at the rear of which two disinfecting sprays are kept in action continuously. The instructions to persons are to open the mouth wide for ten seconds and inhale the vapour [sulphide of zinc] deeply, then to breathe through the nose for 10 seconds, repeating the operation and remaining in the chamber for 10 minutes A notice in the chamber states that persons travelling by train or boat must procure a certificate before leaving the chamber to say they had undergone the treatment.⁵⁹

In addition to providing electric cars, the Board supplied free passes to epidemic workers. To reduce the spread of the virus, all trams at this time were operated as open conveyances.



Interior of an inhalation car.

Photograph: “Weekly Press”/Canterbury Public Library.

how the tramway board worked

elections

Tramway Board elections were generally quiet, uncontroversial affairs, although greater interest was shown by the public than is the case today. Occasionally incidents of interest occurred, such as that concerning the counting of votes in the Riccarton-Spreydon-Halswell sub-district in 1906.

The contest lay between Messrs Sykes and Staples,⁶⁰ "and the former, confident that he would poll heavily at the booth, felt that his victory was fairly safe." Sykes, though, was shocked to discover that,

... according to the supplied returns he had only received 11 votes to the 75 polled by the other candidate, and although the result was incomprehensible to him, he concluded that he had been beaten in his own stronghold.⁶¹

It transpired, however, that the results had been reversed. After a recount Sykes was deemed to have won, and duly claimed his seat on the Board.

One of the more interesting elections was that of 1912. Before this election a confrontation had been brewing between the Tramway Board and the Tramway Employees' Union concerning the Board's recently drafted roster.⁶² The union, which resented what it felt was harsh treatment when it approached the Board about its grievances, believed that the roster was not in its members' best interests, but was very much to the advantage of the Board.

The fledgling Labour Party nominated its own candidates for the election in June so that it would be represented on the Board and could thus alter the Board's policy. This election became, as a result, unusually heated, with battle lines drawn up, and both sides seemingly confident of success. It turned

out that the Labour candidates were to be disappointed — all but one suffered defeat.

"The Press" reported that in a post-election speech before a large crowd, James Flesher, the Board's chairman, who had retained his seat,

... commenced to speak amidst a great deal of raucous interruption. Cheers and "boo-hoos" punctuated his address. He thanked the people who had worked so hard to return him for the third time in succession. There had been a large vote, and his majority had been larger than ever. He was pleased to know that the old members had been elected. (Applause and groans.)

... Mr Flesher said that the results showed distinctly that the electors of Christchurch were quite satisfied with the administration (cries of "No! No!") and that they preferred to endorse the future management of those who had done the work in the past.⁶³

David Sykes, the man who had suffered a scare over the vote-counting in 1906, was another member to retain his seat in 1912. "The Press" reported that,

Mr Sykes said that he had been returned for the second time unopposed. That showed the common sense of the electors of the [Spreydon-Riccarton-Halswell sub-district]. They knew they had a good man, and he knew he had a good district.

A voice [from the crowd]: Or a good job.⁶⁴

the board in action

The majority of decisions affecting tramway operations were made at Board meetings, usually held once every three weeks. One of the most trying aspects of the Board's work was dealing with the numerous delegations that approached it. Such delegations frequently pushed for the construction of tramlines in their particular localities (for example, Opawa and St Albans), reduced tram fares, or supply of electricity.⁶⁵ They became so numerous and persistent that the Board accepted only one per meeting.

The best way to indicate how the Board worked is to review the minutes of one particular meeting — such as that on May 2, 1903, very early in the Board's history. The first item of

business dealt with fixing a tramway rate on properties within the Tramway District. Then a subcommittee was appointed to fix a date for the £250,000 loan poll (for the construction of electric tramways), and to draw up the necessary advertisements. Following this, a deputation of residents from the Riccarton and Templeton areas who wanted the tramway network extended to Riccarton met the Board (they were ultimately successful). A lengthy discussion ensued which included several proposals from the delegation and comments by Board members. The Board then went into Committee to discuss the matter, and on resuming, the meeting was adjourned.⁶⁶

staff

There are few people who have a true conception of the large tramway organisation which has been gradually built up in Christchurch, and of the complexity of the internal working necessary to carry on the undertaking.

So wrote the Board's chairman in his annual report for 1911. He continued in more detail:

The number of passengers carried [in the last financial year] was 13,710,890; an increase, since last year, of 1,034,114. Each ticket has to be accounted for, necessitating numerous entries. There are no less than 875 items of stores, for which separate accounts are kept, necessitating, in this department alone, nearly 30,000 entries per annum; the system of book-keeping adopted enables a complete profit and loss account to be submitted to the Board every four weeks.

The number of letters posted outwards during the year amounted to 10,212. There have been 87 meetings of the Board and committees held during the year. The amount of salaries and wages paid during the year amounted to £54,214 16s 11d. The revenue received amounted to £112,498 18s 7d, practically the whole of it being received in coin.⁶⁷

In the early months of 1903 the Tramway Board's executive staff totalled just three persons: a secretary to the Board, an all-important engineer, and an office-boy. Once the Board got down to the business of tramway operation, however, many further appointments were made — though surprisingly few of the Board's employees came from the old private tramway companies, most being deemed unsuitable.



Motorman and conductor pose for photograph with their tramcar, "Yank" number 12. Note the early style uniforms of the tramwaymen, with their button-up tunics and "pill-box" hats.

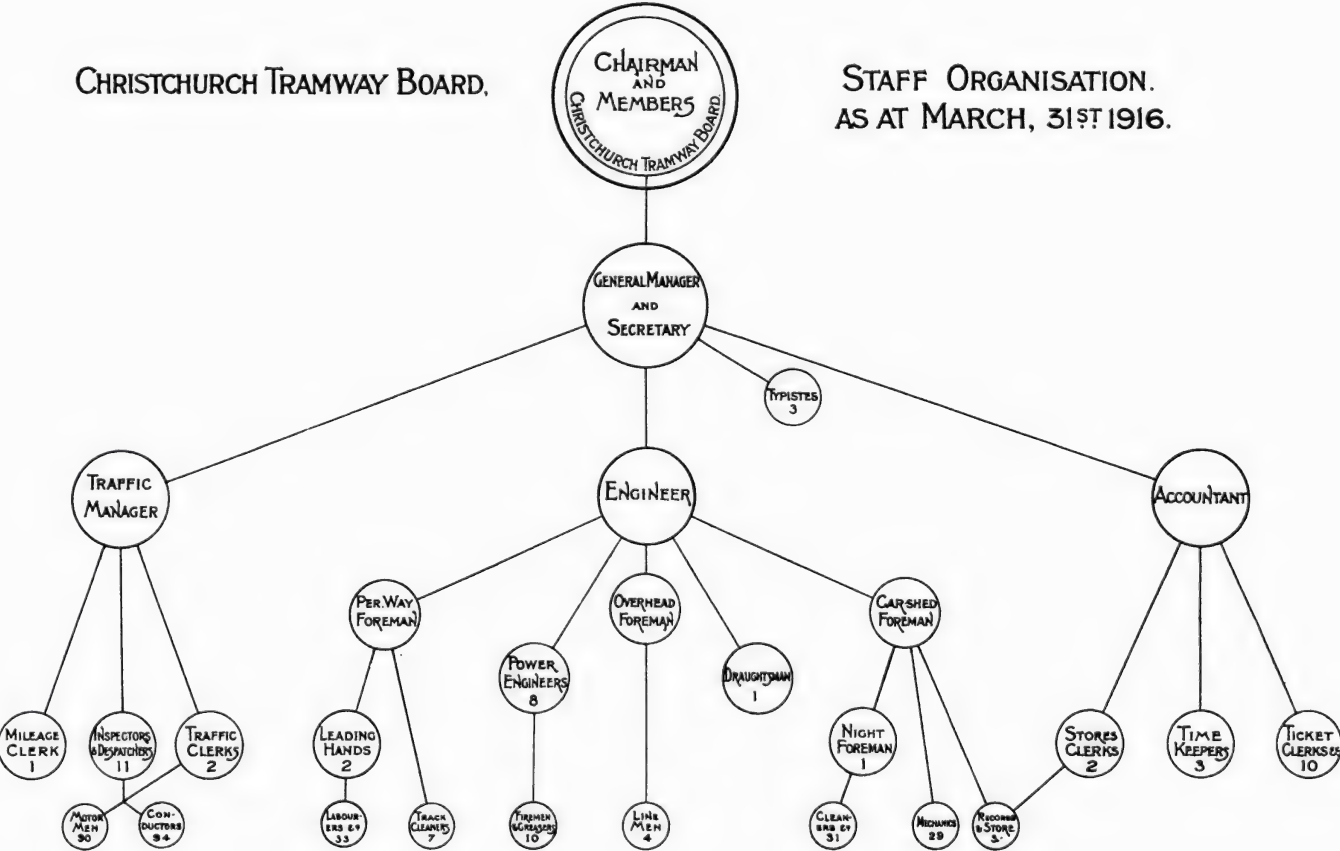
Early on, a system of triple control was initiated, in which the engineer, traffic manager, and accountant each controlled his own area of the tramway enterprise. This method of triple control was found wanting in several respects, however, and some years later a reorganisation of the executive staff took place, "a matter which had been recognised to be advisable for some considerable time."⁶⁸ The major change was the creation of the position of general manager, to which Frank Thompson, heretofore the secretary, was appointed.

Changes in staff organisation were made at various times over the years, but the basic structure remained intact. A diagram from the Board's 1916 annual report showing the Board's staff structure (at March 31, 1916) provides a clear picture:

Tramway Telephone Numbers.

General Manager, Secretary, and			
General Office	..	..	1618
			2806
Traffic Manager's and Engineer's			
Offices	..	..	1618
			2806
Traffic Inspector	..	..	709
Ticket Office, Cathedral Square	..		709
Power House	..	..	1620

From CTB Timetable, November, 1918.



on & off the track

1905 — 1920

travel by tram

The people of Christchurch were regarded as "a race of inveterate tram riders"; a people who had "the tram habit".⁶⁹ Trams had assumed an essential role in their lives. The Board's chairman commented on this in 1917:

The extent to which the tramways have entered into the habits of the people of Christchurch may be gauged by the fact that, since operation under the auspices of the Board was commenced in May 1905, the number of passengers carried has totalled 164,700,109, or, in other words, every man, woman, and child in the district has been carried on the cars nearly 1800 times.⁷⁰

Electric trams, racing along the streets or waiting to pick up passengers, often with trailers in tow, were one of the city's most familiar sights. There were no more familiar sounds than those of the conductor's whistle or bell, or his cry of "All fares, please!", the motorman's gong, the whine of electric motors under the cars, the hiss of airbrakes, and the screech of steel wheels rounding a bend.

Compared with the tramways of the private company days, the trams of the electric era were more frequent and timetables more rigidly adhered to; in regard to the latter point, if the timetable of a single track system were not adhered to, the effect would transmit to subsequent trams, and in no time the service would be in chaos. Passengers could generally be confident that their tram would arrive on time, as the Tramway Board had created a reliable and efficient service.

When a tram was late, or some other problem arose, complaints from the public could be expected. The most common complaints seemed to be those of passengers receiving incorrect change, tramcars starting before passengers had alighted, tramcars leaving a stop early or departing late, incivility from conductors, sprinkler cars wetting passengers or shop goods, overcrowding at peak hour times, and animals, especially dogs, being a nuisance on trams.

Some complaints were patently ridiculous, such as the one from the Christchurch solicitor who in April 1917 claimed 5 shillings threepence halfpenny from the Board because on two occasions the tramcar he had been waiting for had been late, and he had consequently been forced to hire a cab. When the solicitor's claim was presented to the Board it "caused considerable laughter". One Board member even suggested that the solicitor's account should be presented to the Canterbury Museum. The Board of course accepted no liability for the claim.

Tram passengers in Christchurch, as perhaps in other places, were known for several idiosyncracies. One of these was their propensity for inadvertently leaving their belongings on the tramcars. E.D. Hoben, a journalist who wrote about the operation of the Christchurch tramways, among other things, in a booklet published in 1914, had a good deal to say about it. "It is the fair sex," he wrote, typifying the overtly sexist attitude of the age, "that is most forgetful, and the most prone to blame someone else for the result." The articles found were handed in by conductors to the lost property office. Many were never claimed and were auctioned off after six months.

These articles were many and various, and in some cases quite surprising.

Hoben informs us that,

For the year ending March 31 [1913] there were over 1000 articles . . . handed in.⁷¹ Of those, 270 were ladies' umbrellas . . . and there were 32 parasols — 302 umbrellas and parasols left by the forgetful fair Against that 302, only 2 men's umbrellas were left, and neither were of much account, but possibly the 13 walking-sticks were mainly men's, though in these days of ladies' stick-carrying, that is not at all certain. Six ladies' coats, 8 woollen shawls, 14 muffs, 11 boas, makes another score of 33 to the ladies' tally, against only 13 men's and 11 boys' overcoats. But what about 4 pairs of trousers? How did their owners get home? It is not easy to solve the sex problem in regard to 142 bags and kits — but 23 string bags, 16 packets, 2 dress baskets, 6 Maori kits, and 76 peggy bags have a suspicious feminine savour, and they account for 118 of the total.

Hoben goes on to list such unusual items as an eiderdown quilt, 22 pairs of goloshes, new Methodist and Congregational hymn books, "7 pairs of gold specs, and 5 pairs of humbler steel", 3 pairs of pyjamas, 1 new gluepot, a music-stand complete with music, an autograph book, 2 tobacco pouches, and a set of false teeth.

Hoben concludes his amusing discussion by commenting that,

Only a few are obviously masculine. Note that only one man left his billy, only one man left his "new gluepot", only one man left the "ball-cock for cistern". But the Boy Scout who left his water-bottle and two signalling flags can hardly have developed the "Scout memory" that Baden-Powell talks about.⁷²

LOST LUGGAGE.

Lost Luggage found on Cars must be claimed at the Board's Ticket Office, Cathedral Square. If not claimed within six months, the luggage will be sold. Parcels containing perishable goods may be destroyed forthwith.

Claimants for lost parcels, etc., must pay 2d. for the first week (or part thereof) during which parcels are stored, and 1d. for each subsequent week or part thereof.

From CTB Timetable, November, 1918.

Another of the tram passengers' idiosyncracies, a rather more dangerous one, was the habit some passengers had of stepping from trams incorrectly, especially when a tramcar was in motion, sometimes injuring themselves. Here again to Hoben, who said that it was "the skirted section" of the public which was usually at fault, "and as often as not [they blamed] the conductor for the consequences." Hoben, in his inimitable style, explains how this problem occurred (while also having a dig at female emancipation):

Like the man who misplaces his "h's", and who appears to go out of his way and make an absolute effort to put them in or leave them out in the wrong place, you will see ladies who proudly proclaim themselves of superior intelligence to mere man, and wronged because they are denied the premiership, or a place on the Bench, and who pass elaborate resolutions as to the righting of the universe, take elaborate pains to turn around and face the rear of the moving car instead of the way it is going before stepping off.⁷³

The most typical accident involving passengers, according to Hoben, was listed in the Board reports as "Lady alighted from moving car". In one month in 1914, he wrote, there were 31 accidents to members of the public of which "12 were from this foolish habit", the damage to passengers ranging from a "good shaking" to "ankle sprained" and "head cut — teeth broken".

Similarly, accidents could arise when people attempted to board moving trams — as in the case of a young man who sprung onto the footboard of a tramcar as it travelled past him. He missed the step but managed to seize the handrail and was dragged half under the car for some distance. As women screamed and men shouted to the motorman a burly passenger pulled the youth to safety. Upon sitting down in

the car, the dishevelled and dusty youth was lectured by one of the passengers about the dangers of boarding a moving tram.

For some passengers who attempted to board or alight from moving cars, however, the results were far more severe, as they fell under the wheels of cars or trailers, sustaining gruesome injuries. Such was the seriousness of this infraction of the Board's by-laws that the Board threatened to prosecute the very next person who stepped on or off a moving tram.

A further annoying idiosyncrasy the Tramway Board faced concerned passengers who attempted to avoid paying fares. People frequently sought to dodge paying tram fares by pretending to the conductor that they had been on the tram all the time and that he had already dealt with them. Sometimes women with children would act as if their children were not their own to avoid paying for them. Conductors were instructed to ask for all tickets to be shown at each section to overcome non-payment. It has also been recorded that there were cases of people paying fares with counterfeit coins. When passengers were caught attempting to ride free of charge the Board prosecuted.

The Board also had to contend with another group of persons who attempted, often with success, to travel free of charge — cyclists who would hang on to trams moving along the track. This occurred frequently on the New Brighton line, where on many mornings cyclists would wait at the New Brighton bridge for the city bound tram and then "hook up" with the tram as it went through. Up to 10 cyclists at a time would tag on. The police were continually after the cyclists, mainly young boys, warning them about the dangers of hanging on to a tram travelling between 25 and 28 miles per hour, but had difficulty checking on offenders as they frequently gave false names and addresses.

WARNING !

ACCIDENTS

occur chiefly through the

Dangerous Habit

of mounting or leaving
tram cars while they are in
motion.

Public attention is therefore drawn to the following extract from the Board's By-laws :—

No person shall enter or leave, or attempt to enter or leave any Car whilst it is in motion."

Persons breaking the above By-law are liable to prosecution, and a maximum penalty of FIVE POUNDS.

From CTB Timetable, November, 1918.

EXTRACTS FROM BY-LAW.

Passengers must produce tickets on demand or pay another fare.

Tickets must be produced in an open and uncrumpled condition so as to be read at sight.

Passengers must not enter or alight from, or attempt to enter or alight from cars while in motion.

No person shall expectorate in or on any car, or in or about any waiting room.

No person shall smoke in any waiting room, or in or upon any car or apartment or platform thereof not set apart for the purpose.—See page 86.

Persons guilty of a breach of the Tramway By-Law are liable to a penalty not exceeding £5.

From CTB Timetable, November, 1918.

To ensure smooth operation of its tramways, the Board had its own set of by-laws, as had the earlier private tramway companies. These wide-ranging by-laws included several of interest. For instance, no passenger was to smoke "in any waiting-room or in . . . any car or apartment or platform thereof not for the time being set apart for that purpose." Also, conductors had the right to remove children from "any smoking-car or from any part of any car set apart for smoking". Passengers were not to spit, or "expectorate", as the Board labelled it, in tramcars or waiting-rooms; they were not to swear, carry firearms or "dangerous goods", play musical instruments, or travel while intoxicated. The by-laws stated that "persons suffering from contagious disease" were not to travel in tramcars.

The penalty for breaching a by-law was a maximum fine of £5, or "for every such breach or where the breach is a continuing one . . . a penalty not exceeding 10 shillings for every day during which such offence continues."⁷⁴ Enforcement of the by-laws could not have been an easy task, as it was the tramwayman's responsibility to get the names and addresses of miscreants — doubtless, a difficult matter on some occasions.

From CTB Timetable, November, 1918.

tramwaymen

"Christchurch tramwaymen, taken as a body, may be regarded as the finest body of tramwaymen in Australasia", wrote E.D. Hoben.⁷⁵ On what he based this opinion we will never know, but it appears that it was one which was generally supported by the public.

The tramwaymen, or "trammies" as they were popularly known, had a pride in their service; the public, in turn, had a pride in the tramwaymen, regarded them with affection, and took a great deal of interest in them. It was not unusual for someone to be waiting at a tram stop during lunch and tea times with a billy of tea and a batch of freshly-baked scones (tramwaymen took their tea and lunch breaks on the run).

A Mr Clark of Thorrington thought so highly of the tramwaymen that he made a point of inviting them all to spend the day with him on a Sunday around Christmas time. The best in food and refreshments was provided, and the tramwaymen were given the complete freedom of Mr Clark's grounds for the day. A great deal of competition existed among Cashmere tramcar crews over who would have the honour of taking Mr Clark's wife home in their tram. Mrs Clark, who lived to be a great age, was usually picked up and set down opposite her gate, the tramway inspectors turning a blind eye to this minor infraction of the rules.

SMOKING.

No seats are reserved for smokers only but smoking is permitted on portions of tramway cars as under:—

On single deck Electric Cars the OPEN seats at rear of notice, and if these are fully occupied, the standing space behind such seats; and, on cars so provided the END outside cross-seats.

On double deck Electric Cars—the top deck only at rear of trolley standard.

On double deck Trail Cars—the rear half of top deck only.

On single deck Slide Door Trail Cars—the outside seat at each end only.

On Large Open Trailers—on seats at rear of notice.

On single and double deck Open Cars (which are used on special occasions only)—any portion of car.

Smoking is permitted ON ANY PART of LAST TRAIL CAR on the following trips only unless otherwise directed by notice in car.

New Brighton Line—7.18, 7.54, 8.26, and 8.58 a.m. from New Brighton, and 5.10, 5.35, and 6.10 p.m. from Square—Mondays to Saturdays: 1.12 and 11.10 p.m. from Square—Saturdays only.

Sumner Line—7.5, 7.44, 8.15, 8.41, and 9.16 a.m. from Sumner, and 5.15, 5.45, and 6.15 p.m. from Square—Mondays to Saturdays: 1.15 p.m. from Square Saturdays only, and 9.15 p.m. from Square Fridays only.


The Tramway By-law provides that no person shall smoke in any waiting room or in or upon any car or apartment or platform thereof not for the time being set apart for that purpose. Any person guilty of a breach of this By-law is liable to a penalty not exceeding £5.

Children may be removed from smokers' seats. See Extract from By-law at foot of page 122.

Tramwaymen were not in everyone's good books, however. A letter to the editor of "The Press" in September 1912 which roughly criticised Christchurch's tramwaymen included the comment that, "Some . . . are untidy in appearance having dirty boots or collars, and clothes dusty, occasionally showing rents or tears . . ." The Tramway Board replied to the letter and defended its men, stating that, "The reputation of the men . . . for neatness and civility is as good as, and better than, any other staff in Australasia."⁷⁶

Tramwaymen were expected to behave with decorum both on and off the job. While on duty they were not to enter into unnecessary conversations with passengers, smoke or chew tobacco, or read books or newspapers. Off duty they were not to "constantly frequent" hotels or indulge in gambling.⁷⁷ Lateness and absenteeism were rarely in evidence. Tramwaymen enjoyed good wages but worked long hours by today's standards. In 1912 a motorman's average weekly wage was £3 4s 6d; at the same time, his average working week consisted of 50 hours 31 minutes (which included 2 Sundays per month, at an average of 8 hours 44 minutes each).⁷⁸

The motormen, the drivers of the electric cars, stood apart from "the common herd" of tramway employees, at the front of the cars, with a compartment to themselves. Under the

No. 210	 NEW ZEALAND	[Form No. 4.]
ELECTRIC-TRAM DRIVER'S CERTIFICATE OF SERVICE. <small>UNDER THE TRAMWAYS AMENDMENT ACT, 1910.</small>		
<p> This is to Certify that <i>Robert Riley Richards</i> of <i>Christchurch</i>, has satisfied the Board of Examiners that he is entitled to an Electric-tram Driver's Certificate of Service in accordance with sub- section (3) of section 2 of the above-mentioned Act. This certificate entitles the said <i>Robert Riley Richards</i> to act on any tramway as the driver of any carriage or other rolling-stock of which electricity is the motive power. Issued at WELLINGTON, this <i>4th</i> day of <i>December</i>, 1911 <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <i>Robert Riley Richards</i> <small>Signature of Holder of Certificate</small> </div> <div style="width: 45%; text-align: right;"> <i>[Signature]</i> <small>The Board of Examiners.</small> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <i>[Signature]</i> <small>Secretary.</small> </div> <div style="width: 45%;"></div> </div> </p>		

Motorman's certificate.

Tramways Amendment Act, 1910 no one could become a motorman without serving first as a conductor for at least 12 months, and passing a government examination for a motorman's certificate.

The minimum height requirement for motormen had been 5 feet 8½ inches, because it was believed by the tramway authorities that a shorter man would have less control over the handbrake and would experience difficulty reaching the circuit-breaker mounted on the underside of the cab roof. The Board relented on the height requirement in November 1915, however, reducing it to 5 feet 6 inches.

Motormen required a strong constitution if they were to cope successfully with the job. This was especially true during the early months of electric tramway operation in Christchurch when the tramcars had open fronts, thus affording the motormen scant protection from the vagaries of the weather; if not being pelted with rain or hail during the freezing conditions of winter, they would become covered in dust from the unsealed roads during the heat of summer. To circumvent this lack of protection motormen were provided with great coats, oilskins, sou'-westers, and "clogs" (heavy-soled shoes).

Driving an electric tramcar was, technically, a relatively easy task, and electric trams equipped with airbrakes, as all the Board's cars were, did not require the use of great physical strength. What was essential, though, were concentration and alertness. Perhaps the most annoying thing about operating trams was discomfort and exhaustion — especially as motormen generally stood up to drive (the motormen's platforms did have seats, usually of a primitive type, but these could only be used while driving in the suburbs).

When driving the tramcar, the motorman had two major controls to manipulate. In his left hand was the controller, in his right, the airbrake valve. The controller allowed the driver to alter the flow of current to the tramcar motors. The handle of the controller rotated through almost a complete circle, through a series of steps or "notches", each one of which allowed more power to reach the motors, and hence faster movement. To stop the car, the controller was moved back through the full circle of movement available to the "off" position, which cut off the supply of electricity to the motors. The airbrakes were then applied.

The airbrake valve was normally held in the "release" or far left position. The use of airbrakes meant that every tram was equipped with what would now be regarded as "power brakes". A light and easy movement of the air valve to the

right operated the brakes; little physical effort was required, but because airbrakes provided such a powerful braking force, a great deal of skill and practice was essential if the car was to be brought to a smooth standstill at exactly the required spot.

A subsidiary lever to the right of the controller handle was a safety device called the "reversing key". This removable key could be placed in any of three positions: forward, reverse, and off, the latter position locking the main drum and control handle, effectively immobilising the tramcar. Only in the off position could the key be removed. As each tramcar had only one reversing key, it was impossible for the controls at both ends of a tram to be operated simultaneously, which would have caused chaos to the motors.

The motorman's platform contained other items of equipment which included the handbrake, circuit-breaker, and two foot-operated controls which worked the gong and sander. The handbrake, at the far right, was either a hand-operated wheel (which many passengers imagined was a steering wheel) or a goose-necked brass handle. The circuit-breaker, which cut off the supply of current to the motors in the event of a fault or excessive current flow to the motors, was usually mounted on the ceiling immediately above the motorman's head. Circuit-breakers could sometimes blow, usually as a result of rough driving or accelerating too quickly, causing a resounding "bang" and a brilliant blue flash above the motorman's head. This could be a startling demonstration, disconcerting to the driver and truly astonishing to passengers not accustomed to electric tram travel. The circuit-breaker could, however, be easily reset, and the journey would continue. On the floor below the motorman were two metal punches. One worked the motorman's warning gong, and the other caused sand to be dropped in front of the wheels of the car to increase its adhesion on wet or slippery rails. The gong and sander were operated by a firm downward treading action.

In Tramway Board practice, only one set of control handles and floor punches was provided on tramcars. All of these — the controller handle, reversing key, brake handle (on "Hills" cars, the track brake changeover handle), and the gong and sander punches, as well as the motorman's seat — were carried from the motorman's platform at one end of the tramcar to the other, for the return journey.

While operating his tram, the motorman had to keep a lookout to ensure that the track points were set in the correct position for his trip. Points which directed trams onto passing



Controller of "Boon" tramcar number 152. The reversing key has been removed from its knob at the right of the controller.



Airbrake valve of "Boon" tramcar number 152.



Looking south along Colombo Street from the intersection of Armagh, Victoria, and Colombo Streets, about 1918. This photograph clearly demonstrates overhead span wiring. The tramcar in the distance is a "Boon". Note the large number of cyclists and the motorcar on the left.

Photograph: Canterbury Museum.

loops and crossing places were kept in the correct setting by springs, but these sometimes developed faults. At junctions of routes the points were set by the conductor, using a points bar, like a small crowbar. (If a conductor lost his points bar he had to pay for a new one out of his own wages.) Observation of points was made difficult at night as tramcars always had inadequate headlights; this difficulty was increased during snow and surface flooding.

At the largest junction, "the Bottleneck" at the southern end of Cathedral Square, a pointsman was provided to set the points for incoming and departing trams. The job was a busy one which consisted of a great deal of walking, especially during peak hours. It was said that this job was often used as a punishment for conductors who had committed some indiscretion.

Although the working timetables nominated the passing loops to be used by various trams at particular times on the single track lines, these were not always observed. Being even a few minutes behind schedule made all the difference. An impatient motorman would often push on if the tramcar travelling from the other direction was not in sight. Many a time opposing trams would meet on a single track. It was a constant source of amusement to the passengers to hear the arguments of the motormen, each claiming right of way. Someone had to lose, however, and one motorman would back up, somewhat reluctantly, and often quite a distance, to get to the nearest passing loop.

In the performance of his job, the conductor had to keep three considerations in mind. First, safety of passengers was of paramount importance. Second, was collecting fares and issuing tickets. And third, was courtesy towards the public — not always an easy task, especially when dealing with drunks and argumentative passengers. In addition, the conductor was an encyclopedia of local information — while memorising the

instruction book and list of lost passes, and being prepared to change a pound note for a penny fare, he found time to call out the names of the tram stops on each route as the tram reached them.

Conductors required self-control, tact, patience, and physical fitness. The job could be particularly trying, and sometimes dangerous. Among the hardships conductors experienced was contending with ladies' hatpins, which were fashionable at the time. These hatpins could inflict nasty injuries — especially on crowded trams.

The conductor was expected to collect fares on more than one car, and often, particularly in the very busy early years of electric tramways, trailers were the norm rather than the exception. If the tram was not stopping, the conductor simply swung himself out of one car and across the gap to the following car, a spectacle which amazed visitors to Christchurch until the end of the tramway service.

As well as pushing his way through crowded saloon cars, the conductor was expected to swing himself along the outside footboard (or "running-board") of "toastrack" and combination cars to collect fares. This meant collecting the cash fare, tearing off and punching the ticket, and handing it to the passenger along with the correct change, all of which required considerable agility. On wet days, he not only had to contend with all these things, but had to push past the waterproof curtains which were pulled down to protect the passengers. While swinging along the outside footboard, the conductor had to keep a wary eye out for any section of track with centre-poles, because to be dashed against one of these at speed would almost certainly prove fatal. Fortunately for conductors, legislation passed in 1913 necessitated the provision of access corridors through cars, while removal of the centre-poles was completed by 1915.



"Yank" number 15 heading south along Colombo Street from Cathedral Square. Note the small gap between the centre-pole and the tramcar — the bane of conductors, as they swung along the "running-board" collecting fares. Note the colour symbols together with destination sign at the front of the tramcar. The old Bank of New Zealand building is on the right.

Photograph: Beken Collection/Canterbury Museum.

After each tram section the conductor would enter the tickets sold onto his waybill. This had to be kept up to scratch as an inspector could appear at any time to check the tickets.

It was the conductor, too, who changed the trolley-pole or -poles at the end of the line, leapt from the car to replace the pole if it "dewired", and assisted with the coupling up of trailers to the tramcar. The latter was a heavy task, in which the conductor had to lift and line up together the coupling heads of the tramcar and trailer, while the motorman drove the tramcar slowly towards the trailer until the couplings were fully pushed into position. The holding pins were then inserted, the airbrake hoses between the cars joined up and turned on, and the electric cable for the trailer lights and buzzers was plugged in.

The relationship between the motorman and his conductor was usually a good one, although in some cases it could become one-sided, with the motorman holding the upper hand. If a conductor was remiss enough to give a "late bell" (signalling late when passengers wished to alight), if he signalled for the tram to stop when no one wanted to get off, or gave two bells for one stop, he was likely to receive an earful of abuse from the motorman when the tram reached the terminus. It was said that some motormen could not bear the sound of the tram bell, so they would muffle it with ticket blocks or pieces of paper. In the early days of tramway operation in the city conductors rather than passengers usually rang the bell for the tram to stop, but before long this had changed, and signalling to the motorman was nearly always done by the passenger.

To ensure a high standard of service, a merit/demerit system was introduced shortly after the beginning of the Board's

operations. In this system men were given merit or demerit marks according to their performance. Those receiving a high number of merit marks were given a day added on annual leave with full pay, while those receiving a high number of demerit marks were disciplined, usually by having a day deducted. This system was not liked by the men who felt it to be "inimicable" to their interests. The Board argued that only those whose conduct was poor would be affected, as the conduct of the men should ideally not attract demerit marks. In the end, the men won out, and a more equitable system which consisted of five grades was introduced. At the end of every three months each man's record was ascertained. The rewards and disciplines remained the same as for the previous system.

The following incident shows the earlier merit/demerit system in action. A conductor happened to be drinking his tea on the front platform of a tram one day because the rear was in a cloud of dust. The motorman, beside him, was smoking a cigarette. Just at that moment, the traffic manager drove past. Neither the conductor or the motorman saw him, but the next day the conductor received 10 demerit marks — for smoking! The conductor, feeling aggrieved because he had been falsely accused, complained to the traffic manager. In reply, his superior said, "Well, if you don't deserve them for smoking, you deserve them for something else" — and there the matter ended.

One tramway official whom the tramwaymen (and members of the public) were especially wary of was the ticket inspector, or "shark" as he was often known. Ticket inspectors were a familiar sight, particularly in Cathedral Square. Their duties included checking discrepancies in tickets, ensuring that the tram crews behaved themselves, and that the cars were kept neat and tidy. Though the inspectors were necessary for the efficient operation of the tramway system, some members of the public apparently believed otherwise, as shown in this letter in 1909 to the editor of "The Press":

I consider they [the Tramway Board] are simply throwing money away by employing four ticket inspectors. The salaries of these employees, I imagine, amount to about £600 per annum, and I venture to say they do not increase the Board's revenue by £100 a year. This department is, in my humble opinion, considerably overstaffed. It is quite a common occurrence to see two of these inspectors standing at the street cars [tramcars] having a quiet chat. If ticket inspection is a necessity (which I very much doubt) the Board should see that the work is done systematically, and not in the haphazard way it appears to be at present.⁷⁹

Some aspects of the tramwayman's job must have caused irritation. One that was probably unique to Christchurch was the so-called "wet weather timetable". When it rained, Christchurch's vast number of cyclists left their bicycles at home and took to the tramcars, creating a massive upsurge in patronage. To cope with this, casual and off-duty staff had to decide first thing in the morning if they thought the day was going to be wet, and if so, report for duty, as all available cars were put into service. A major annoyance was that sometimes the casual and off-duty staff got it wrong: they arrived on the job only to find that the weather was not as bad as they had anticipated. In such cases they returned home, unpaid.

The screech of steel wheels on steel rails caused by trams as they passed churches on Sundays drew the ire of church authorities, who requested a reduction in trams running during the times when church services were held. From the first year of electric tram operation in Christchurch, motormen were instructed by the Board to make as little noise as possible when passing churches at such times. To what extent the church authorities were satisfied is uncertain.

WARNING!

Passengers are informed that **ONE PULL** of **BELL-CORD** or **ONE SHORT PRESSURE** on **BELL-PUSH** is the correct signal to stop a Car.

One continuous ring of bell is a danger signal to the motorman, and **MUST NOT** be used by passengers, as the sudden stoppage injures the car equipment and may cause an accident.

REMEMBER
ONE SOUND OF BELL
TO STOP CAR.

accidents

Hazards on the road were many and varied, but usually the skill of the motormen enabled trams to go about their business without mishap. The Board's tramways had a good safety record, although a number of accidents did occur, some of which were spectacular and unusual. The main accidents, though, were the run of the mill variety such as carts capsizing on tracks, people alighting from moving cars, and collisions with bicycles and animals — especially dogs and sheep. Some tram routes seemed to suffer more accidents than was normal, such as the Sumner line, while some tramcars and trailers seemed to be more prone to accidents than others.

The occasional tramway accident provides a certain amount of comic relief. A case in point concerned a Chinese gentleman who somehow managed to find himself on the track in front of an oncoming tram. The details of the incident are sketchy, but the man in question was fortunate enough to be scooped up by the iron fender attached to the front of the tram, and escaped uninjured. It was said — no doubt with tongue in cheek — that an inspector reported the tram's conductor for non-collection of the man's fare.⁸⁰

The most sensational tramway accident to occur in Christchurch happened on May 15, 1919, on the Sumner line. Boon tramcar number 153 and two saloon double-decker trailers (numbers 53 and 58) left Sumner for the city at 4.10 pm. All three cars were fully loaded, with about 250 passengers, all told, of whom about 100 were standing.

On the city side of the Heathcote bridge was a passing loop known to tramwaymen as the "Heathcote loop". The electric car and the first trailer successfully negotiated the points and continued on the straight track, but the second trailer, number 58, was not so fortunate — it jumped the points and followed the right-hand side. The couplings held and the trailer capsized at a point opposite the door of the Heathcote Arms Hotel (now the Ferrymead Tavern), and was dragged a short distance before the electric car stopped.

About 50 people had been on the trailer, many of whom were women and children. Those on the top deck of the trailer were pitched onto the roadway and received the worst injuries,

while those inside sustained serious cuts from splintered wood and broken glass. Forty-five passengers were injured, 14 of whom were admitted to hospital. One of these died two days later.

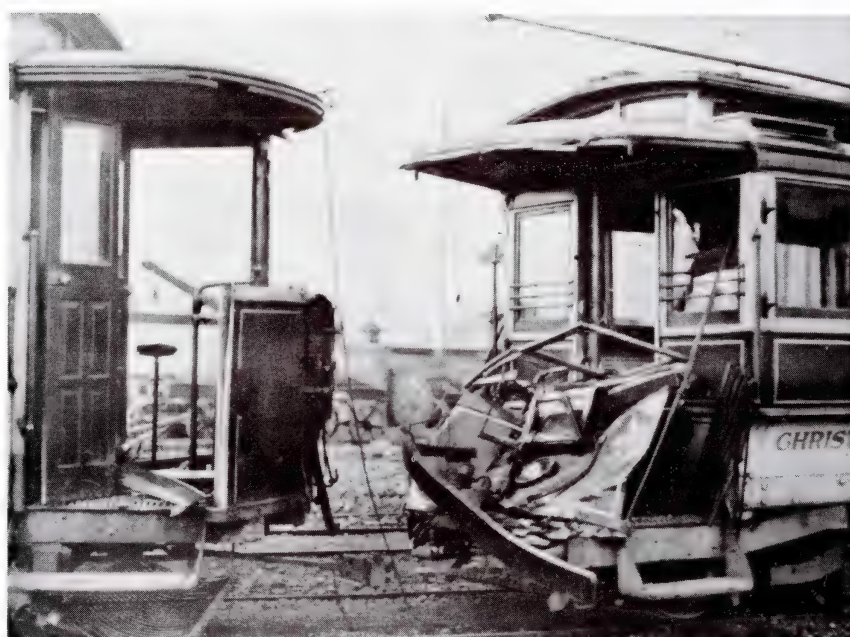
An enquiry was held soon after the accident, but no definite explanation could be found. It was suggested that in addition to travelling at excessive speed, the trailer may have been top-heavy, shifting the centre of gravity. The incident provided a grisly example of the consequences of overcrowding. The conductor was jammed in the first trailer and was unable to signal to the motorman, and in any case was probably not immediately aware of what had happened.

Another well-known tramway accident also occurred on the Sumner line, this time at Monck's Bay, at 10.45 am on August 13, 1917. Boon tramcar number 46, with one trailer attached containing about 20 passengers, was on its way to Sumner. On the passing loop at Burn's Jetty, Monck's Bay, number 46 passed the ordinary timetabled tram from Sumner and continued on its way around the curve. At the same time, tramcar number 13, a "Yank", with four empty trailers attached, was coming from Sumner, but was hidden from sight of number 46 by the hills.

When the motorman of number 46 realised a collision was imminent, he threw his controls into reverse and put his brakes on — a standard emergency procedure — before jumping clear and escaping almost certain death. At a point about 150 yards from the loop and opposite Shag Rock the two trams met in one of the heaviest collisions Christchurch's tramways had ever known. The motorman of number 13 had remained in his tramcar but avoided injury.

Surprisingly, none of the passengers were injured. The Sumner service was held up for about an hour-and-a-half until the Board's repair gang cleared the line.

Not long before the accident the Board had installed an automatic Nachod signal (see GLOSSARY) at this point of the track, which operated from the Sumner end of the tram bridge. It was found on a subsequent inspection to be working; consequently the motorman of number 46 was suspended for over-running the loop.



The result of an accident which occurred on the Papanui line on July 3, 1907. As one of the tramcars entered the loop line near Rugby Street on its way to Papanui, its controller jammed. Before the motorman had time to deal with the problem, his car crashed into a tramcar coming from Papanui, causing extensive damage. Only one passenger was seriously injured — this was a woman who jumped off one of the tramcars and as she fell sustained a fractured skull.

Photograph: "Weekly Press"/Canterbury Public Library.

tramcars, trailers and tracks

electric tramcars

During the first 15 years of the Tramway Board's operations all but 28 of Christchurch's electric tramcars entered service.⁸¹ A wide variety of styles were used, no doubt to ascertain which were the best for the Christchurch system. The tramcars were of two basic types: the four-wheel or single-truck car which, according to an old time tramwayman, "travelled with a peculiarly bouncy motion like a ship at sea and threatened to leave the track when passing over very uneven rail joints"; and the more comfortable eight-wheel "bogie" or double-truck tramcars.

The four-wheel electric tramcars, both locally-made and imported, were each equipped with a "Peckham" number 8B truck, having an electric traction motor driving each axle. The eight-wheel bogie or double-truck electric tramcars of this period also had trucks built by or under licence from the Peckham Company; these were 14D5 trucks, which consisted of one large set of wheels (the driver wheels), 33 inches in diameter, to which the electric motor was connected, and one smaller set of wheels (the "pony" wheels), 20 inches in diameter, which were not motorised. The latter type of truck was commonly referred to as a "maximum traction" truck, but this was something of a misnomer, since maximum traction could, in reality, only be achieved if every axle was powered by a motor.

After the first order of 22 tramcars was received from the famous American coachbuilding firm of John Stephenson and Company,⁸² all cars were built locally; all but two of them by Boon and Company (the two exceptions were built by the Tramway Board itself). Probably the main reason for turning to locally constructed cars was their lower cost; although it may have been true that the Board wanted to be seen to be fostering local industry. The Board's decision proved to be a wise one as the locally constructed cars turned out to be every bit as good as, if not better than, those from overseas.

The electric trams of the early years ran smoothly and quietly. Newspaper reports of the time refer to the ease with which the trams ran, and this is borne out by memories of those who can remember the trams of those days. With newly laid track and new electric cars with all their parts working quietly and efficiently, the cars glided through the streets of Christchurch. It was not until later in the tramway era that the distinctive "clunking" and "rattling" sounds remembered by tram users became more pronounced.

Open-sided cars tended to be quieter than closed cars, as the body work on the latter magnified the noises the car made. Later conversions of the early open cars, where steel panelling was used to enclose them, tended to intensify the noise. The sliding glass windows that were fitted added to the clamour. In addition, most of the tramcars, particularly those with open sides, were draughty.

The early electric tramcars were impressive vehicles, containing fittings of high quality. Tram builders prided themselves in their cars, and took pains over their workmanship. Tram interiors were given many coats of varnish, producing an immaculate finish. The external painting and varnishing was also of the highest class, with many coats being



Interior of "Yank" tramcar.

applied before the cars were ready for service. (In time, however, the condition of these cars deteriorated with use.⁸³)

The Tramway Board's tram colour scheme prior to 1920 was "Paris" green with white and silver lining. Changes in the colour scheme did occur in later years.⁸⁴

Until 1910 all of Christchurch's trams had a colour code system on the front to indicate destination, together with a destination sign. The purpose of the colour code system was so that people who could not read could memorise the route colour combination — for example, Papanui was plain red and the Christchurch Railway Station featured a black triangle on a white background. During 1910 the system was changed.

Destination boxes were fitted at each end on the roof of the driver's platform and removable route number discs were put above these. In 1921 large route number boxes were placed at each end of all cars and the destination boxes were shifted to the front left and right rear sides.

During 1905 to 1920 various modifications were carried out on the cars, including fitting windscreens, enclosing or partly-enclosing the combination cars, thus doing away with the original draughty weather-proof blinds, and the provision of centre aisles.

Trams were the fastest vehicles on the roads in Edwardian times. The Boon, for example, could travel at a steady 15 miles per hour — admittedly, not fast by today's standards, but back in the early years of the twentieth century no other road vehicle could match them. The "Yanks" equipped for the Cashmere Hills extension route were slightly faster; they could reach a speed of about 20 miles per hour. Probably the fastest of the Christchurch trams during 1905 to 1920 were the "Hills" cars, which could roll along at 25 to 30 miles per hour.

Maintenance of all the Board's rolling stock was performed by its Car Shed Department. This was a large undertaking which required men working both day and night shifts. When each car completed a certain mileage it was automatically withdrawn from service for a complete overhaul. While in service, ordinary calls for maintenance were also performed. Motormen filed daily reports on the condition of their cars.

In Christchurch many of the tramcar and trailer types were known by nicknames — for example, "Yanks" and "Hills" cars — which sometimes varied between the traffic and car shed staff. This was unlike many other tramway systems where tramcars and trailers were given and were known by official class names.

the Stephenson cars

Note: All the Stephenson cars were part of the original order of tramcars, entering service in 1905.

California Combinations: Five built; numbers 1-5. These were originally single-truck open-ended combinations with longitudinally seated saloons and open cross-benches at each end, seating 36 until the centre aisle regulation reduced the seating capacity to 32. During 1919-1920 they were all converted to single saloon type cars, which became known as "Dinghys" (because they behaved like a small boat in a swell), some having transverse seating, others retaining longitudinal. The fate of some of these cars is intriguing: Number 2 was converted into a staff dining car in 1946, and four years later converted again, this time into a sprinkler-cum-grinder; and Number 4 was fitted up as the illuminated Art Union car.⁸⁵

"Yanks". Ten built; numbers 11-20. These were double-truck cars, originally of the combination type with a saloon with longitudinal seating and an open section with transverse seating, accomodating 49 passengers (reduced to 42 after the centre aisle legislation). Five Yanks were fitted with track brakes in 1912 for operation on the Cashmere Hills extension line. During 1929-1930 the open section of the cars was enclosed with panels and windows, forming end- and centre-entrance. The name "Yank" was a shortened form of their original name, "Yankee combination" (as distinct from the "local combination" cars built by Boon and Company.)



Two "Yank" tramcars in Cathedral Square during the time of the International Exhibition of 1906-1907. Note that men predominate in the draughty open section of the front tramcar. The conductor stands at the rear, from which position he would have to swing along the "running board" to collect the fares.



California Combination. Note the fancy fender at the right-hand end of the car.

Photograph: Canterbury Museum.



A "Yank" tramcar and its crew. Note the colour code together with its destination sign at the front of the tramcar and the single trolley-pole. Note also the different height of the motormen's compartment's, a feature of the Yank.

Boxcars. Three built; numbers 21-23. These were single-truck cars with longitudinal seating with a capacity for 28 passengers. Two of the three were equipped for multiple operation (see GLOSSARY). In 1950 number 21 became a staff dining car in the town sheds, while number 23 was rebuilt in 1946 with a water tank and track cleaning equipment, and became a "grinder" car (see GLOSSARY).



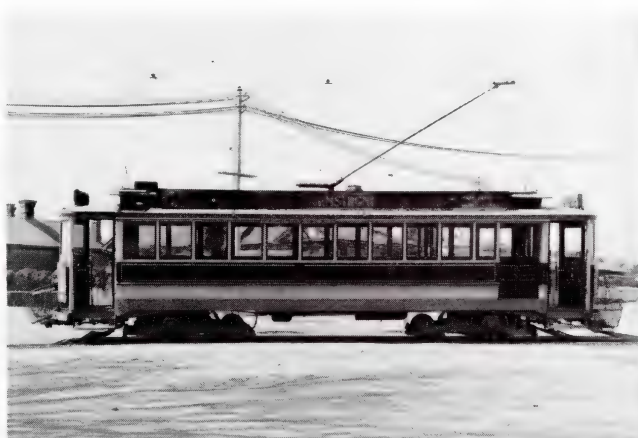
Boxcar.

Double-deckers. Three built; numbers 24-26. These double-truck cars had seating for 76 passengers, with 32 on the lower deck (longitudinal seating) and 44 on the upper deck (transverse seating). Although of large capacity, the double-deckers were found to be an unsuccessful design. Chamberlain, the Board's first engineer, had not recommended double-decker tramcars from the outset, for the following reasons: (i) the greater likelihood of accident to passengers in the event of the trolley-wire breaking; (ii) the likelihood of accidents when passengers ascended or descended the stairs, if the car was started too suddenly; (iii) the delay in loading and unloading, a great inconvenience at rush times; and (iv) the upper deck made the tramcar too heavy, consequently requiring more power, and was useless in wet weather, when the traffic was heaviest, while the advantage of open-air riding was obtained equally in the combination cars; in addition, with the double-decker tramcars the wind-resistance was greater.⁸⁶ Until about 1917 the double-deckers ran the entire Sumner service. The following year they were converted into single-deckers, and in 1920 converted into "Facing Mother" trailers, their numbers being allocated to three new "Hills" cars. The original electric tramway specifications called for six double-decker cars, but only three were built — hence, fleet numbers 27, 28, and 29 were never used.



Double-decker tramcar.

Baggage Car. One built; number 30. This double-truck 44-seater was unique in New Zealand, built as a combination baggage and passenger car with longitudinal seating. Its original purpose was to carry baggage between the Christchurch Railway Station and Cathedral Square, but its duration in this capacity was brief, owing to the fact that many of the railway passengers did not use the trams. It was then used as an ordinary tram, but did not prove popular — the public was not fond of its longitudinal seating and it was a slow loader. In May 1938 the baggage car was converted into a "bike tram" to convey tramwaymen's bicycles between Cathedral Square and the Falsgrave Street car shed (the reason for this being that a tramwayman's shift would begin at one depot and finish at another). Later in its life, this car was severely damaged in an accident and was never repaired.



The Baggage Car.

Boon and Company, tramcar builder extraordinaire

The name Boon goes hand in hand with the electric tram era in Christchurch, as the local coachbuilding firm Boon and Company constructed 69 electric tramcars and 44 trailers for the Christchurch Tramway Board. For more than 25 years during the first third of the twentieth century the company was noted as the foremost tram builder in the country, constructing over 100 electric cars in all.

Joseph Kittson Boon (c. 1844-1935) emigrated to Christchurch from England late in 1873. Trained as a coachbuilder, he soon found work with Hudson and Moor, coachbuilders of Whately Road (now Victoria Street). Boon later became friendly with W.J. Stevens, who at the time was in partnership with J.R. Glenville (their premises were also in Whately Road). At the end of 1874 Boon, being of an independent nature, set up his own business in Tuam Street. In 1877, after the dissolution of the partnership of Glenville and Stevens, Stevens joined forces with Boon.

The new company, which set up its premises in Lower High Street (now Ferry Road), produced high quality hansom cabs,

gigs, dog carts, and other horse-drawn vehicles. Boon and Stevens were late starters in the tram-building market in Christchurch because their rival, William Moor, had secured the majority of the contracts during the private company years.

Friction arose between Stevens and Boon in the late 1890s, and in 1898 Boon severed the partnership and went into business alone. In the following years he expanded his premises and introduced his eldest son, William Joseph, into the firm. Boon seemed to have a penchant for self-promotion, there being several reports in the newspapers about the vehicles he had constructed.

At this point Boon began building tramcars. In its initial contract, the Tramway Board called tenders locally for five four wheel combination cars, and Boon and Company won the contract. These tramcars, the same type as the single-truck combinations built by Stephenson, were constructed by Boon and Company in the Tramway Board's car sheds in Falsgrave Street. Two of them were used in the opening day procession in June 1905. These five cars were numbered 31-35.



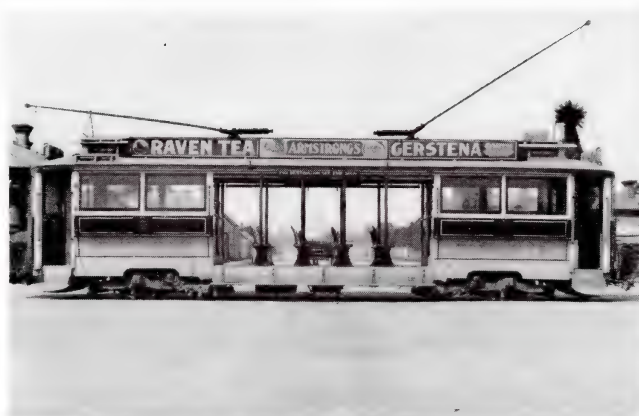
Joseph Kittson Boon and his staff outside the original 1899 premises at 86 Lower High Street (now Ferry Road). Boon is on the left; his sons, Will and Arthur, are on the right.

The Boon-built trams proved very successful and Boon gained a monopoly over tramcar and trailer construction in Christchurch. Between 1906 and 1910 the company built 28 double-truck tramcars for the Board which became known simply as "Boons". They were numbered 6-9, 36-47, and 150-161. These cars were originally built with two end saloons and a centre open section with cross-benches, seating 40 (in the cars entering service in 1906-7 and 1909) and 48 (in the cars entering service in 1910). Legislation introduced in 1913 necessitated the provision of a centre aisle and led to the loss of four seats. The centre section was "dropped" (that is, built lower than the end sections) to eliminate the high steps which had been a problem in the Stephenson cars. This innovation had been designed by Scott Symington, the Board's electrical engineer,⁸⁷ and proved so successful that it became the pattern for many Australasian tramcars until recent times. These cars were partly convertible by curtains which prevented rain from coming in.

Another type of tramcar built by Boon and Company were the "Hills" cars. Thirteen were built, the first 10 entering service in 1912, and the final three (which utilised undergear from the double-decker tramcars) in 1920. These cars were numbered 162-171 and 24-26. Having seating for 44 passengers, these double-truck cars were originally single saloon convertibles with the large cross-seated section open or convertible for both winter and summer conditions by means of aluminium panels and windows sliding up under the arched roof. These powerful cars were built especially for use on the Cashmere Hills line, as their name suggests, and were equipped with air track brakes in addition to the usual wheel brakes.

The Company went on to construct further tramcars (during 1920-1926) and some trolley-buses (1930-1931). These vehicles will be covered in Volumes 5 and 6.

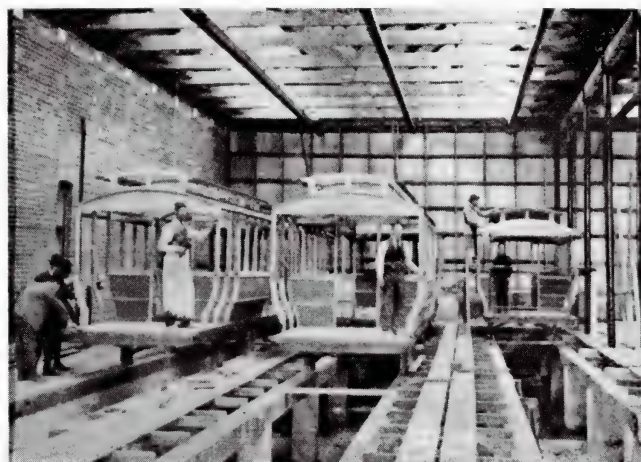
Boon and Company remains in existence, though with a much smaller staff than in its heyday. Today it builds bodies for commercial motor vehicles.



"Boon" tramcar.



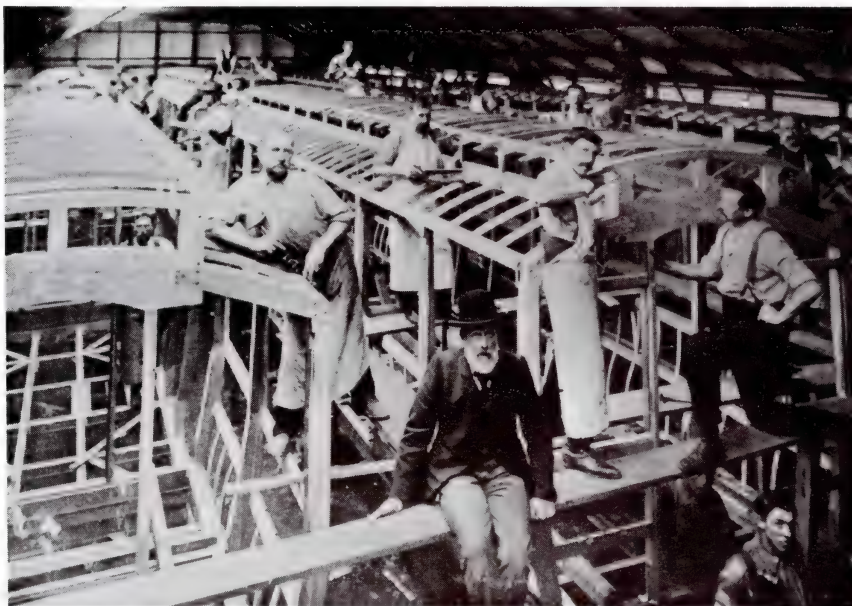
"Hills" tramcar.



The original Christchurch combination tramcars in the course of construction by Boon and Company in the Board's Falsgrave Street car sheds, January 1905 (numbers 31-35).



*Scott Symington, electrical engineer.
Photograph: "Weekly Press"/Canterbury Public Library.*



Six "Boon" tramcars (numbers 36-41) being constructed in November 1905 in a building hired by Boon's for the contract. Joseph Boon in the foreground.

trailers

The use of trailers behind electric cars was a feature of Christchurch's tramways, largely because the flat nature of the city suited their use. Most other electric tramway systems throughout Australasia did not use trailers extensively. Christchurch's tram services were, as a result, much slower than elsewhere and its electric cars performed poorly in comparison, with motors burning out sooner than normal — the earlier electric tramcars in Christchurch were not designed to haul extra weights.

Many of the Tramway Board's trailers were acquired from the private companies. This was unusual in that the few tramway authorities of the electric era who used trailers tended to acquire new ones when they began operating their systems. Because the Christchurch track gauge had not changed, no major modification of the horse and steam trailers was required. Modification could not be avoided altogether, though; such improvements as new steel wheels, improved brakes and other safety features, wiring for electricity (for lights both inside and outside — a vast improvement over the old kerosene lamps), and strengthening for haulage behind electric tramcars were necessary. These modifications were an ongoing process.

The Board kept the old trailers in use for a longer time than originally intended; indeed, from the beginning calls for

replacement were heard regularly from Board members. As time went on, there was a tendency to patch them up rather than modernise them (although this was not the case with some of the "Cage" trailers, which were filled in and made into saloon double-deckers). In this manner many of the old trailers were kept in service until the end of the tramway system, although their use was limited in later years to busy times, such as for race and holiday traffic.

Not surprisingly, some members of the public were disgruntled, as this letter to the editor of "The Press" in 1912 demonstrates:

My first grievance is the very dirty condition of the old trailers which rumble, rattle, and bump along behind the Sumner cars. The ventilators are rarely, if ever, open and are covered with dust and grime of years of accumulation, a veritable breeding ground for millions of microbes lying in wait to attack the weakest. Some of the seats are covered with dirty old strips of carpet which would be better ripped off — the clean scrubbed boards are better and far away more hygienic. I doubt the floors of those old arks of trailers have ever been scrubbed; it is not too much to expect that the interiors of all cars should be scrubbed and fumigated at least once a week . . .⁸⁸

private company trailers taken over by tramway board

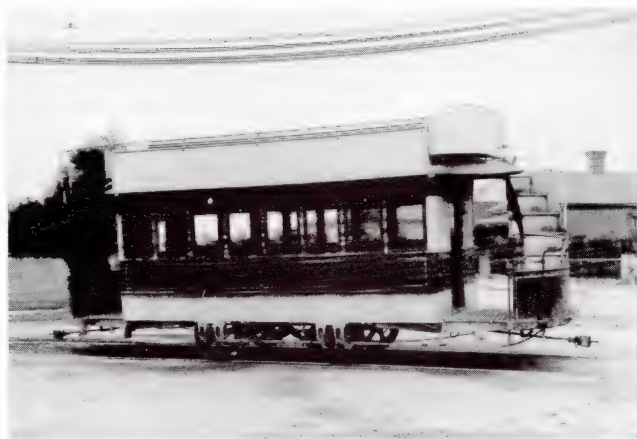
Note: All private company trailers were taken over by the Board during 1905-1906.

"Jumbo" or "Rotomahana". One in use; number 51.⁸⁹ Named after Rotomahana, an inter-island steamer of the period, this trailer was constructed by Boon and Company from two saloon double-decker trailers. It had a centre doorway and longitudinal seats in the saloons as well as the upper deck, and could seat 92 passengers. It was originally intended to be the first of a fleet, but no further conversions were made.



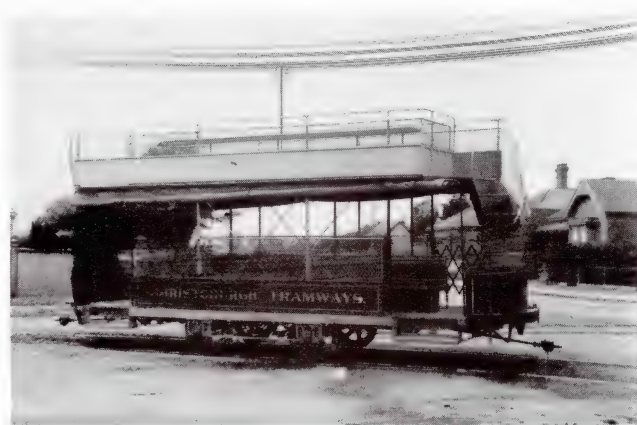
"Jumbo" or "Rotomahana".

Saloon double-decker trailers. Thirty-six in use; numbers 52-70 and 84-100.⁹⁰ Entered service after rebuilding and reconditioning, including steel wheels and tyres. The upper decks had longitudinal back-to-back seating, and the lower saloons, enclosed by panels and windows, also had longitudinal seating. They had curved staircases and aprons at both ends, and seated 46 passengers.



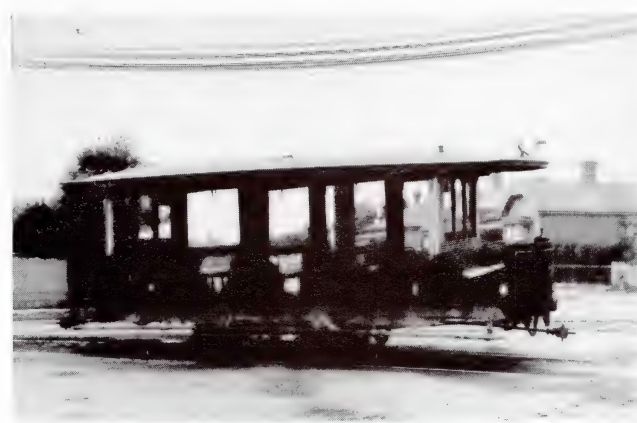
Saloon double-decker trailer.

“Cage” trailers. Seventeen in use; numbers 71-83 and 101-104.⁹¹ These double-decker trailers which had both top and bottom open, by means of wire-work (resembling a cage), are believed to have been unique to Christchurch. They seated 48 passengers, and had back-to-back, or “knifeboard”, seating on both decks. Some of them were converted into saloon double-deckers in the 1920s.



“Cage” trailer.

“Punts”. Five in use; numbers 105-109.⁹² These were single-decker toastrack type trailers, which resembled a flat-bottomed boat, with cross-seats originally seating 50, but later reduced to 40.



“Punt” trailer.

Note: A single-decker horse car, originally imported by the Canterbury Tramway Company in 1887 (which numbered it 51), and converted into the California combination style in the 1890s (renumbered 43), was taken over by the Board (renumbered 50) but never converted for electric operation. It was used instead as a horse-drawn tram during parades and a youth employment campaign during the Depression.

trailers constructed for the tramway board

Note: All of these trailers were constructed (or converted, in the case of the "Facing Mother" trailers) by Boon and Company.

"Duckhouse" or "Chicken Coop" trailers. Six built, entering service 1908-1909; numbers 110-115. These single-truck trailers were the first trailers constructed for the Board and originally had four compartments, with the appearance of a duckhouse or chicken coop, and seated 50. After the centre aisle regulations they were reconstructed (during 1919-1920) to create single saloon trailers with windows which could be raised up into the roof, and seating reduced to 28.



"Duckhouse" trailer.



"Dreadnought" trailer.

"Dreadnought" trailers. Eight built, entering service 1911-1912; numbered 116-123. These were double-truck trailers and were the largest and heaviest built for the Board. The first four were open, but the last four were convertible with aluminium panels and windows which slid into the arched roof (the first four were soon modified into convertibles also). The Dreadnoughts, named after a famous class of battleship, had transverse seating and were later run as end- and centre-entrance trailers with most of the running-board removed. Numbers 116-119 seated 65 (later reduced to 48) and numbers 120-123 seated 44.



Interior of "Dreadnought" trailer number 122. The windows, which slid upwards and inwards toward the lightbulbs, have been raised. The wheel at the far end operated the handbrake. Note the high-quality finish of the interior.

"Big Bertha" trailers. Two built, entering service 1915; numbered 124-125. Basically a single-truck version of the Dreadnought, these were 48-seaters with arched roofs and were convertible by means of sliding aluminium panels and windows. Later run as end- and centre-entrance trailers with the rest of the running-board removed.



"Big Bertha" trailer.

"Standard", "New" or "Boon" trailers. Twenty-seven built, 1 entering service 1917, 16 in 1918, and the remainder in 1921-1923; numbered 126-142, 146-149, and 201-206. These were single-truck 38 seat arched roof trailers with transverse seating in the saloon and folding seats on the end platforms. The aluminium blinds on the end platforms were replaced with folding doors in 1922. Numbers 203-205 were converted into "St Martins Cars" in 1927.⁹³

"Facing Mother" trailers. Three converted, entering service 1920; numbered 143-145. These trailers were converted from the double-decker electric tramcars (numbers 24-26), and had folding doors, rebuilt fronts replacing stairways, and longitudinal seats. Their curious name was probably derived from the fact that passengers sat on longitudinal seats, facing each other; among these passengers, presumably, was a large proportion of mothers.

trams and trailers of the period at Ferrymead

The following trams and trailers were used in Christchurch during the years covered in this booklet, and are now at the Ferrymead Historic Park.

electric tramcars

California Combination number 1.

"Yank" number 20.

"Boon" number 152.*

"Hills" number 24.

Note: Double-decker number 26 is expected to arrive at Ferrymead soon.



Two "Standard" ("New" and "Boon") trailers being hauled by "Brill" tramcar number 174, 1922.

trailers

Saloon double-decker number 64.

Saloon double-decker number 84.

Saloon double-decker number 91.*

"Cage" double-decker number 74.*

"Cage" double-decker number 103.

Single-decker horse car number 50 (see page 50).*

"Duckhouse" number 115.*

"Dreadnought" number 118.

"Standard" Trailer number 202.

* Restored and operating.

tracks and trolley-wires

With the transition to electric trams the Board had to immediately replace the tramlines of the old private companies: first, because the track was in poor condition, and second, because it was too light to handle electric trams.

The tramrail initially used on Christchurch's electric tramways, laid at the standard gauge of 4 feet 8½ inches, consisted of several types. Mostly 63 and 92 pound grooved rail were used initially, although the former proved unsuitable for standing up to the pounding of the heavier tramcars. Ninety-five pound grooved rail was used on tramline curves, where the stress on the track was greater, while 72 pound "T" rail was used alongside the Estuary and along the Esplanade at New Brighton.

When laying track a trench was excavated and shingle ballast laid into it to a depth of about 6 to 8 inches, and tamped by hand (in later years pneumatic tampers were used). Standard sleepers were laid 2 feet 6 inches apart, and the rails were placed on these and held by spikes.⁹⁴ If the track formed part

of the road, once laid it was necessary to fill in the trench to the level of the road. The method of track construction was improved during the 1920s — the busier routes were re-laid with concrete foundations and a bitumen surface — and most track was re-laid with heavier rail.⁹⁵

While re-laying track, services were generally kept going, though at reduced speed. The area of excavation was roped off and illuminated at night by red hurricane lamps. In the event of extensive work a watchman would be installed in a hut at either end of the site. He removed the rope and lamps across the track before, and replaced them after, trams had gone through. The watchman remained on duty until the last tram passed the excavation, then, having reset the lamps, he went home. This was a long, cold stint in the winter months, when the watchman had only a coke brazier in front of his hut to keep him warm. As the trams at night ran infrequently, there were long inactive hours. The watchman appreciated any company he could get.

Because the track in the early days was newly laid, mostly with new rails, it was not only correctly aligned to provide a smooth running surface, but free of the corrugations which gave rise to the track noise of later years. In time, though, the rails wore and developed surface corrugations — giving rise to what is known as “roaring rails” — and thus the quality of tram travel deteriorated.

The trolley-wire, suspended above the track, conveyed power to the trolley-pole, from which point it travelled down the trolley-pole, and by operation of the “controller” (see page 39), to the motors housed between the wheels under the tramcar (from here the power went to the rail, along which, by way of the negative feeders, it returned to the power house, completing the circuit).

The trolley-wire had to be kept at a constant height above the rails of 18 feet 6 inches, which meant that existing telephone, telegraph, and power lines at the same height as the trolley-wire and its supporting structure had to be relocated. In those days there were many more overhead lines than is the case now.

Generally, the trolley-wire was supported by bracket-arms suspended from poles (some areas of the tramway network, though, always had span construction). In the early days of electric tram operation many of these poles were located in the centre of the road. This central location was not without hazard. To begin with, the poles endangered the lives of conductors, who had to swing along the outside footboards of trams to collect fares. This problem was first mentioned in the Board’s annual reports in 1911, when it was stated that several accidents to conductors had “brought the question of

centre-poles into prominence”.⁹⁶ Second, centre-poles presented an obstacle to the increasing volume of traffic using the city’s streets.

As a consequence, the Board gave instructions to remove centre-poles from loops, and it was suggested that the question of the removal of all centre-poles should be considered at an early date. The question received due consideration, and by 1915 centre-poles in all areas (with the exceptions of Moorhouse and Linwood Avenues, “both of which were two chains wide, rendering span construction practically impossible”⁹⁷) had been removed. The trolley-wire was subsequently suspended from wires which spanned the streets and were attached to roadside poles.

The supply of electricity to the trolley-wire came by way of the “positive feeders”. These were heavy stranded copper insulated cables that were connected at strategic points to the system. The trolley-wire was divided into half-mile sections, as required by government regulations, each of which was separated from the others by means of a block of wood, known as a “section isolator”; the positive feeders fed into each of these sections. Motormen had to remember to cut off the power when their trams bridged the isolated gaps, because if they did not, a gigantic blue flash would occur which could lead to damage. When the input from a positive feeder was switched-out the power to a section would be cut off without interfering with any other section.

In order to ensure that the electricity returned to the power house without losing too much on the way, “negative feeders” were used. Like the positive feeders, they were connected at strategic points to the system.



Sydenham, looking south along Colombo Street, with the Club Hotel on the right. Note the centre-poles. The double track ceases between the front two poles.

Photograph: Canterbury Museum.

A feature of the Christchurch tramway system, unique in New Zealand, were the tramway-railway level crossings. In all, there were six such crossings: at Colombo Street, Antigua Street, Lincoln Road, Riccarton Road, Fendalton Road, and the short-lived crossing to Plumpton Park. At these crossings semaphore signals were used to warn motormen of approaching trains, and sets of "catchpoints" (or "trap-points", as they were also known) were also installed to derail trams that proceeded against a danger signal. Signalling was the responsibility of the railway signalman or crossing keeper. The Tramway Board contributed to the cost of this service, but always did so reluctantly.

Between the first tram in the morning and the last tram at night the track was open for the trams and only closed for the passage of trains. It was the duty of the motorman of the last tram to inform the crossing keeper that his was the last tram. The crossing keeper would then set the tramway signals and points to danger and they would remain in this

position until the first tram the next day.

After the initial tramway construction contract won by the New Zealand Electrical Construction Company was completed, all track and overhead construction was carried out by the Board's Permanent Way Department. This department was also responsible for track and overhead maintenance, an important and time-consuming activity — especially given the extensive nature of the Christchurch system.

The Board resented the fact that a great deal of the road and track damage was not caused by the passage of tramcars and trailers but of ordinary road traffic. The drivers of ordinary road vehicles preferred to use the Board's section of the road because it was so well maintained. It was believed that 80 per cent of the surface damage of the road and track was caused by motor traffic. The maintenance of a good surface was also impeded by Christchurch's bad subsoil.⁹⁸



Early photograph of tramcar heading south on Colombo Street. Note open front, colour symbol, and overhead span construction.
Photograph: Muir & Moodie Postcard/Canterbury Museum.

Maintenance of the trolley-wire was not without its difficulties either. In the case of the Sumner line, for example, it had been necessary for the Board to acquire an overhead line car to erect its trolley-wires and keep them maintained. The reason for this was that access to the trolley-wire on the causeways and viaduct, before roads were built alongside, was not possible for road bound vehicles. This car, which became known as "Gentle Annie" because it had only one motor and travelled at a sedate pace, was constructed with a single truck

and had a hand-operated hoist. It was unusual as it had double headlights, double trolley-poles, and no airbrakes. Although Gentle Annie saw service on various routes, it became a hindrance because of its tie with the rails; when trams approached, it had to scurry to the next loop. As road traffic increased, and with the availability of more flexible road vehicles, it was used very little. Gentle Annie was broken up in 1955.



The Tramway Board's overhead vehicles with some members of staff outside the Car Shed in Falsgrave Street. "Gentle Annie", built in 1906, is on the left.

afterword

If the Tramway Board felt it had experienced many difficulties in the first 15 years of its control of the city's tramways, it was soon to discover that these difficulties were not to be alleviated; indeed, they worsened. Competition increased, the Depression was soon to come, and perhaps most worrying of all, the Board had to come up with a vast sum of money to make its first loan repayment in 1934. At this time, too, early doubts began to arise over the future of tramways — would some alternative mode of transport take over?

The story of Christchurch's tramways from 1921 to 1954 is one of at first, confidence, but then of pessimism and decline, of controversy and uncertainty. That story will be told in Volume 5 of this series.

Although the era of electric tramways is long past in New Zealand (though still a familiar form of public transport in many cities overseas), the interest in the vehicles and history of the period, and in transport in general, is not; indeed, in recent years a revival of interest has occurred — organisations such as Ferrymead and the Yaldhurst Transport Museum attest to this, as do the efforts of the Christchurch Transport Board

and the Tramway Historical Society to record the history of local transport.

"On the Move" is a series of booklets written and published by the Christchurch Transport Board, working with the assistance of the Tramway Historical Society. These organisations believe it is essential that efforts be made to record Christchurch's transport history before it is too late. They would be grateful, therefore, to hear from people who can help — in particular, by providing photographs and written material, both of which can be copied, and details of personal experiences.

Topics to be covered in future volumes include the Tramway Board and its electric trams 1921-1954, buses, and suburban railways. The subject of Volume 1, **BULLOCK TO BROUGHAM**, was private road transport in early Christchurch; the subject of Volume 2, **HAILING A HANSOM**, was public transport and transport in trade and industry in Christchurch's horse-drawn days; and the subject of Volume 3, **RAILS IN THE ROADS**, was the steam and horse tram era in Christchurch.

glossary

Alternating current: The most suitable form of electricity for transmission over long distances, normally converted into direct current for tramway systems.

Chain: A unit of measurement equalling 66 feet. Eighty chains are equal to one mile.

Combination car: Tramcar design combining both open and closed passenger accommodation.

De-wire: Tramwayman's jargon which means the trolley-pole coming adrift from the trolley-wire.

Direct current: The most commonly used form of electricity for tramway systems. The best type of motor for tramway working was the direct-current series-wound motor.

Drag: Four-in-hand coach originally built for private use but later widely used for public transport.

Gauge: The distance between the inner edges of the rails of a tramline or railway line.

Grinder: Works car equipped for grinding down the corrugations in the surface of tramrails.

Longitudinal seating: Seats that are built along the length of the tram.

Multiple operation: The operation of two or more electric tramcars as one unit.

Nachod signal: Automatic signal system, consisting of coloured lights, often installed to indicate whether or not a single track was clear where visibility was impeded.

Passing loop: A second track parallel and connected by points at both ends to a single track section to allow tramcars to pass each other.

Permanent way: Track of a tramway, including rails, sleepers, etc.

Points: A junction of the track at which a pair of rails can be moved so that a tram can be directed onto either of two lines.

Pointdrain: Sump and drain that was part of the points. Its purpose was to keep the points clear of water and rubbish.

Rolling stock: The wheeled vehicles collectively used by a tramway concern, including tramcars, trailers, steam motors, works vehicles.

Rotary converter: A device used to convert alternating current into direct current.

Sinking fund: A fund accumulated out of revenue and invested to repay a long-term debt or to meet a depreciation charge.

Sidebar: A longitudinal bar placed by conductors on either side of the open section of a tramcar to prevent entry or exit.

Thermit welding: A welding process in which a mixture of aluminium powder and metal oxide is used; when this mixture is ignited it reacts with the evolution of heat to yield aluminium oxide and molten metal.

Trailer: Another name for a tram, when hauled behind a steam motor or electric tramcar.

Transverse seating: Cross-seating.

Trolley-pole: The pole connected to each electric tramcar, which runs along the trolley-wire (by way of the trolley-wheel) and conducts electricity from the trolley-wire to the tramcar motors.

Turbine: A device used to convert energy (for example, steam or water) into direct rotary motion.

Turbo-generator: A large electrical generator driven by a steam turbine.

1 inch	= 2.54 centimetres
	0.025 metre
1 foot	= 0.23 metre
1 yard	= 0.9144 metre
1 mile	= 1.6 kilometres
1 acre	= 4.4686 square metre
	0.4 hectare
1 gallon	= 4.556 litres
1 lb	= 0.45 kilograms

endnotes

- 1 = "The Press" 29.5.05
- 2 = Both privately-owned services were later, however, to come under municipal control.
- 3 = For more on steam and horse tramways, see Volume 3.
- 4 = For more on the tramway hearse and the Corporation line, see Volume 3.
- 5 = The purchase of the various existing tramlines by the Tramway Board during 1903 to 1906 extinguished the remaining concessions.
- 6 = "Lyttelton Times" 3.6.05
- 7 = "The Press" 22.7.1896
- 8 = "The Press" 13.3.03
- 9 = "The Press" 2.6.03
- 10 = The Christchurch Tramway Board was the only autonomous municipal tramway authority in New Zealand controlled by an elected board. All other New Zealand municipal tramway concerns were under the control of municipal councils.
- 11 = In addition to the sinking fund, the Board had other reserve funds — including those for depreciation and renewal — but these were not necessitated by the Act.
- 12 = Now the Governor-General
- 13 = "The Press" 22.1.03
- 14 = *ibid*
- 15 = Wigram, H., "The Story of Christchurch, New Zealand" (Christchurch, 1916), p. 209
- 16 = "Lyttelton Times" 3.6.05
- 17 = "Lyttelton Times" 18.9.06
- 18 = "The Press" 23.6.06
- 19 = This date refers to the opening of the line for passenger traffic, not the official opening day.
- 20 = Tramway Historical Society, "All Fares Please" (Christchurch, 1967), p.4
- 21 = "The Press" 23.6.06
- 22 = Canterbury Tramway Company letter to Conference of Local Bodies on Tramway Matters, August 20, 1901, section 18.
- 23 = CTB, "Official Record of Progress and Development 1930", p. 31
- 24 = "The Press" 29.5.05
- 25 = "Lyttelton Times" 3.6.05
- 26 = "Tramway Topics" January-February 1974
- 27 = This phrase may have referred to the fact that the trolley-pole had dewired, or that the trolley-wire was faulty, or loose and being blown about by the wind, though its exact meaning is not certain.
- 28 = "Tramway Topics" January-February 1974
- 29 = "The Press" 6.6.05
- 30 = "Lyttelton Times" 7.6.05
- 31 = "Lyttelton Times" 20.1.06
- 32 = "Lyttelton Times" 29.1.06
- 33 = For more on steam operation, see Volume 3.
- 34 = The 7 Kitson steam motors were augmented with a Baldwin steam motor, purchased in 1906 (see Volume 3).
- 35 = CTB Annual Report 1909, p.4
- 36 = "Lyttelton Times" 1.7.10
- 37 = CTB Annual Report 1912, p. 3
- 38 = *ibid*.
- 39 = *ibid.*, pp. 4-5
- 40 = CTB Annual Report 1914, p. 3
- 41 = CTB Annual Report 1912, p. 8
- 42 = Research has failed to reveal the precise date of the opening of the Plumpton Park extension, but it is known that the line was completed in December 1915 and trams were operating on it in January 1916.
- 43 = A Charles O'Malley had been involved in tramway construction and, unsuccessfully, in tramway operation during the steam and horse tram days. This is presumably the same man.
- 44 = "The Press" 17.4.16
- 45 = "Lyttelton Times" 1.10.14
- 46 = CTB Annual Report 1917, p. 3
- 47 = CTB Annual Report 1916, p. 5
- 48 = CTB Annual Report 1919, p. 3
- 49 = Hoben, E.D., "Christchurch, Fair Tree-Set City of the Plains" (Christchurch, 1914), p. 83
- 50 = "The Press" 10.11.06
- 51 = "The Press" 6.5.05
- 52 = Wigram, p. 208
- 53 = "Tramway Topics" September-October 1975
- 54 = CTB Annual Report 1920, p. 4
- 55 = CTB Annual Report 1914, p. 5
- 56 = "The Press" 23.6.06
- 57 = "Tramway Topics" May-June 1972
- 58 = CTB Annual Report 1919, p. 9
- 59 = "The Press" 11.11.18
- 60 = Both Sykes and Staples were to become prominent Board members, and both were to be Board chairmen.
- 61 = "The Press" 24.5.06
- 62 = For more on the Tramway Employees' Union, and its relationship with the Board, see Volume 5.
- 63 = "The Press" 28.6.12
- 64 = *ibid*.
- 65 = Because the Tramway Board had a reliable supply of electricity and its electrical network reached beyond the city, it was often requested to provide street lighting and to supply electricity; these requests were rarely successful, however.
- 66 = CTB Minutes, 2.5.03
- 67 = CTB Annual Report 1911, p. 5
- 68 = CTB Annual Report 1910, p. 4
- 69 = Hoben, p. 60
- 70 = CTB Annual Report 1917, p. 4
- 71 = The Board's annual report for the 1912-1913 financial year states that 3040 articles were handed in; so how Hoben, who is generally accurate, reached his figure of "over 1000 articles" is uncertain.
- 72 = Hoben, pp. 70-71
- 73 = *ibid.*, p. 69
- 74 = "New Zealand Gazette", April 15, 1909, pp. 1093-1096
- 75 = Hoben, p. 66
- 76 = "The Press" 22.6. 12
- 77 = Stewart, G., "The End of the Penny Section" (Wellington, 1973), p. 78
- 78 = "The Press" 27.9.12
- 79 = "The Press" 20.11.09
- 80 = "Tramway Topics" January-February 1974
- 81 = The 28 cars not built during the period consisted of 25 "Brill" or "One-man" cars (entering service 1921-1927) and 3 "St Martins" cars (1927). For further details, see Volume 5.
- 82 = John Stephenson and Company went bankrupt soon after completing the Christchurch cars.
- 83 = See Volume 5.
- 84 = See Volume 5.
- 85 = The Art Union was a national lottery which ran monthly, beginning in the 1930s. It closed on a Friday, and on that day the Art Union car trundled around the city advertising that the lottery was closing.
- 86 = "Canterbury Times" 29.4.03
- 87 = The position of "electrical engineer" was subordinate to that of "engineer". But Symington, an important figure in the Board's early history, was to replace Chamberlain as engineer when the latter resigned.
- 88 = "The Press" 27.9.12
- 89 = The private company numbers of the two saloon double-decker trailers used in the construction of "Rotomahana" are unknown.

⁹⁰ = Numbers 52-70 came from the Canterbury/Christchurch Tramway Company; numbers 84-94 from the New Brighton Tramway Company; and numbers 95-100 from the City and Suburban Tramway Company.

⁹¹ = Numbers 71-83 came from the Christchurch Tramway Company; and numbers 101-104 from the City and Suburban Tramway Company.

⁹² = Numbers 105-109 came from the Canterbury/Christchurch Tramway Company.

⁹³ = See Volume 5.

⁹⁴ = CTB, "Official Record of Progress and Development 1927", p. 49

⁹⁵ = See Volume 5

⁹⁶ = CTB Annual Report 1911, p. 4

⁹⁷ = CTB Annual Report 1915, p. 6

⁹⁸ = CTB, "Official Record 1927", p. 43

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errata — volume 3

Apologies to readers of Volume 3, RAILS IN THE ROADS, for the following errors:

* page 13, column 2 — the property in Cathedral Square retained by the New Brighton Tramway Company was leasehold property, not freehold.

* page 23, column 1 — the drivers of horse trams generally stood, rather than sat, to drive.

* page 29, column 2 — tramrail diagrams (b) and (c) are slightly exaggerated; the lower portion in each should be reduced in size.

